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ARCHEOLOGICAL OVERVIEW AND ASSESSMENT

OCTOBER 1987

PATUXENT

WILDLIFE RESEARCH CENTER

MARYLAND

UNITED STATES DEPARTMENT OF THE INTERIOR / FISH AND WILDLIFE SERVICE AND NATIONAL PARK SERVICE

Hqw

COMPLETED

ARCHEOLOGICAL OVERVIEW AND ASSESSMENT
PATUXENT WILDLIFE RESEARCH CENTER
LAUREL, MARYLAND

by

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Prepared for

Fish and Wildlife Service

at

Applied Archeology Center
Eastern Team - Denver Service Center
National Park Service

United States Department of the Interior

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ABSTRACT

Documents concerning the Patuxent Wildlife Research Center (Laurel, Maryland) and the history and prehistory of its locale have been reviewed, and an existing, broadly provenienced collection of prehistoric artifacts from sites within the Center has been examined, for the purpose of identifying and evaluating the significance of prehistoric and historic archeological resources there. Some general recommendations for resource management are made. A report of testing conducted at one prehistoric site, done to assess and mitigate the impacts of a new crane pen, is provided in an appendix.

INTRODUCTION

This overview and assessment concerns archeological resources in the Patuxent Wildlife Research Center (PWRC). Its purpose is to aid the development of a Management Plan for the PWRC, and to help its managers address compliance issues which involve archeological resources. Land managers in the Fish and Wildlife Service, as in other Federal agencies, are responsible for insuring that cultural resources on their properties, including archeological sites, are identified and their significance assessed. The purposes of this requirement, contained in the National Historical Preservation Act of 1966, as amended, are the preservation of significant resources, where possible, and the mitigation of adverse effects (disturbance/destruction) on such resources where other legitimate agency objectives conflict with preservation. In addition, the Archeological Resources Protection Act of 1979, and implementing regulations issued in 1984, prohibit the unauthorized removal or disturbance of resources on public lands, and provide for civil penalities for violations.

This report's subject is intentionally limited to specific kinds of cultural resources, those which are archeological resources as commonly defined -- the artifacts, features, and other materials which make up prehistoric and historic sites. It does not encompass the full range of cultural resources at the PWRC, primarily because an assessment of the scientific and architectural values of existing structures is beyond my expertise. In particular it should be noted that the report does not address the eligibility of the existing facilities of the PWRC for nomination to the National Register of Historic Places, even though their historic role in wildlife research may in the future serve to establish their eligibility. To some extent this omission is remedied by Sasser's draft Historic Structures Inventory (1987).

Since no new field research has been performed, the content of this report reflects information presently available concerning archeological sites at the PWRC. With regard to prehistoric sites, the information consists of a large collection of artifacts, which for the most part has been previously catalogued along with a good deal of provenience data. These artifacts and their provenience have been analyzed to establish the locations, extent, and likely periods of use of sites. The identification of historic sites has been accomplished primarily by means of maps, secondary sources, and such data as are contained in property files for the PWRC. Descriptions (in several instances cursory) of the identified sites are provided below, together with brief outlines of regional prehistory and history, and suggestions regarding the probable significance of sites. The report concludes with a summary of the characteristics of known archeological resources, a discussion of potential conflicts between preservation of these resources and the operation or future development of the PWRC, and recommendations concerning additional archeological investigations.

ENVIRONMENTAL SETTING

Physiography

The Patuxent Wildlife Research Center (PWRC) is an area of approximately 4,700 acres in Prince Georges and Anne Arundel Counties, Maryland. It is situated midway along major routes between Baltimore and Washington, D.C. Adjoining the Center are Fort George G. Meade to the northeast and the U.S. Department of Agriculture's Beltsville Agricultural Research Center (BARC) to the southwest (Figure 1).

The PWRC lies almost entirely in the valley of the Patuxent River; it is located in the Coastal Plain segment of the valley, approximately 6 miles below the Fall line, which forms the boundary between the Coastal Plain and Piedmont physiographic provinces. One of the most basic aspects of the PWRC's location is that the river here is entirely a fresh-water stream. The river has a substantial fall in its southeasterly trending course through the PWRC (approximately 25 ft. over a 3.5 mile distance), but much of the stream is braided and portions of the broad floodplain are swampy, especially away from the river.

The local physiography has been described most concisely by Hotchkiss and Stewart (1979:3-4). The most significant characteristic is the division of the PWRC into areas of floodplains, terrace, and upland (Figure 2). The fairly gentle relief spans 150 ft. of elevation, between approximately 75 ft. and 225 ft. A.M.S.L. The PWRC contains areas of floodplain on both sides of the river, which is the boundary between Anne Arundel County to the northeast and Prince Georges County to the southwest. Most of the center, however, and nearly all its upland and terrace areas (including "islands" of terrace within the floodplain), are southwest of the river. The major local tributary to the river is Cash Creek, which flows northeasterly through the southeastern part of the PWRC. Two man-made lakes have been created along this stream--Lake Redington and Cash Lake. There are, in addition, a few smaller brooks (which supply several artificial ponds) and numerous springs.

The geological formations (the Arundel and the Patapsco) underlying the PWRC are unconsolidated sediments of Lower Cretaceous age, which "consist of gray and yellow sand; red, brown, and gray clay with nodules of ironstone; and variegated red and yellow sand, clay, and fine gravel interbedded with layers of clay" (Kirby et al. 1967: 162-163; Hotchkiss & Steward 1979:4).

These ironstone nodules, also known as bog iron, constituted an important ore for early iron industry in the vicinity, and local deposits of sand and gravel were also commercially exploited, into the mid-twentieth century. Ironstone was also used historically as a building stone and prehistorically in manufacturing stone tools, although quartz and quartzite, available locally as pebbles and cobbles in alluvial deposits, were more important in this regard. Steatite, from various locations along the Fall Line, and crystalline rocks (rhyolite, chert, jasper) from areas of the Piedmont and beyond, were also important lithic resources prehistorically.

Some of the soils of the PWRC, specifically the Christiana and Sunnyside series, in the upland, derive directly from weathering of the Lower Cretaceous sediments. The other soils are of more recent alluvial or loessal origin, primarily Pleistocene. On the floodplain of the river alluviation is continuing, and much of the surface soil there may have been deposited during the historic period, when timbering and intensive cultivation engendered severe erosion in upland areas. Due to a variety of factors, particularly slope, seasonal flooding, and either poor or excessively good drainage, most of the soils of the PWRC are (and were historically) unsuited for permanent cultivation. The best farm land is on the level terrace areas and adjacent upland benches.

The semicontinental climate of the region is humid and temperate, with mild winters and warm, moist summers. Precipitation is fairly evenly distributed throughout the year. The average number of days between spring and fall frosts (32°F) is 160 at Glenn Dale, three miles south of PWRC, and 184 at Laurel, two and one-half miles northwest (Kirby et al. 1967: 2-4). A detailed review of the likely paleoclimate and vegetational

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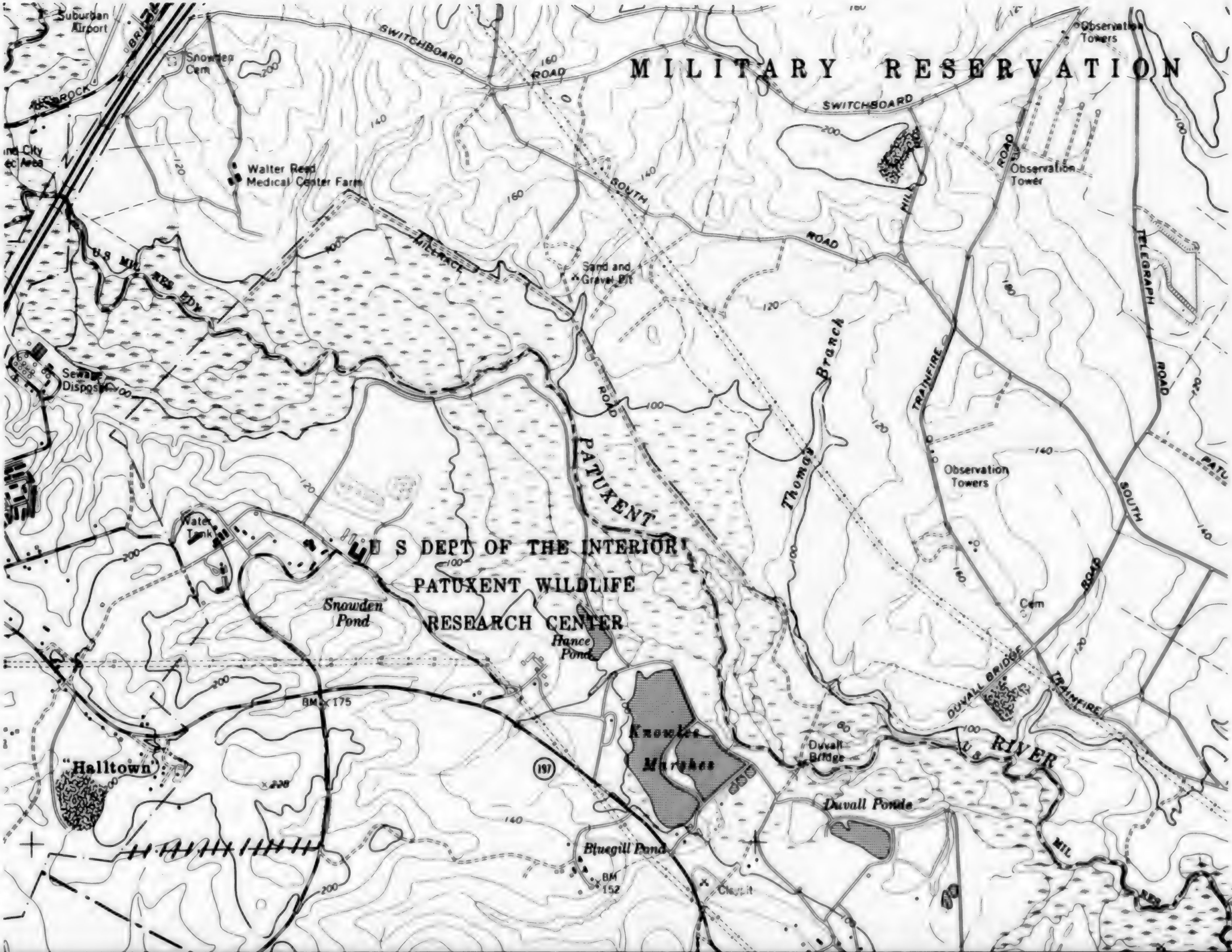

MILITARY RESERVATION
Suburban Airport
Snowden Cem
Walter Reed Medical Center Farm
SWITCHBOARD ROAD
SOUTH ROAD
HILL ROAD
TELEGRAPH ROAD
TRAINFIRE ROAD
Observation Towers
Observation Tower
Sand and Gravel Pit
U S MIL RES BDY
Sewage Disposal
Water Tank
PATUXENT RIVER
Thomas Branch
U S DEPT OF THE INTERIOR
PATUXENT WILDLIFE RESEARCH CENTER
Snowden Pond
Hance Pond
Knowles Marshes
Duvall Bridge
DUVALL BRIDGE ROAD
Duvall Ponds
Bluegill Pond
"Halltown"
Cem
BM 175
BM 152
Clay Pit
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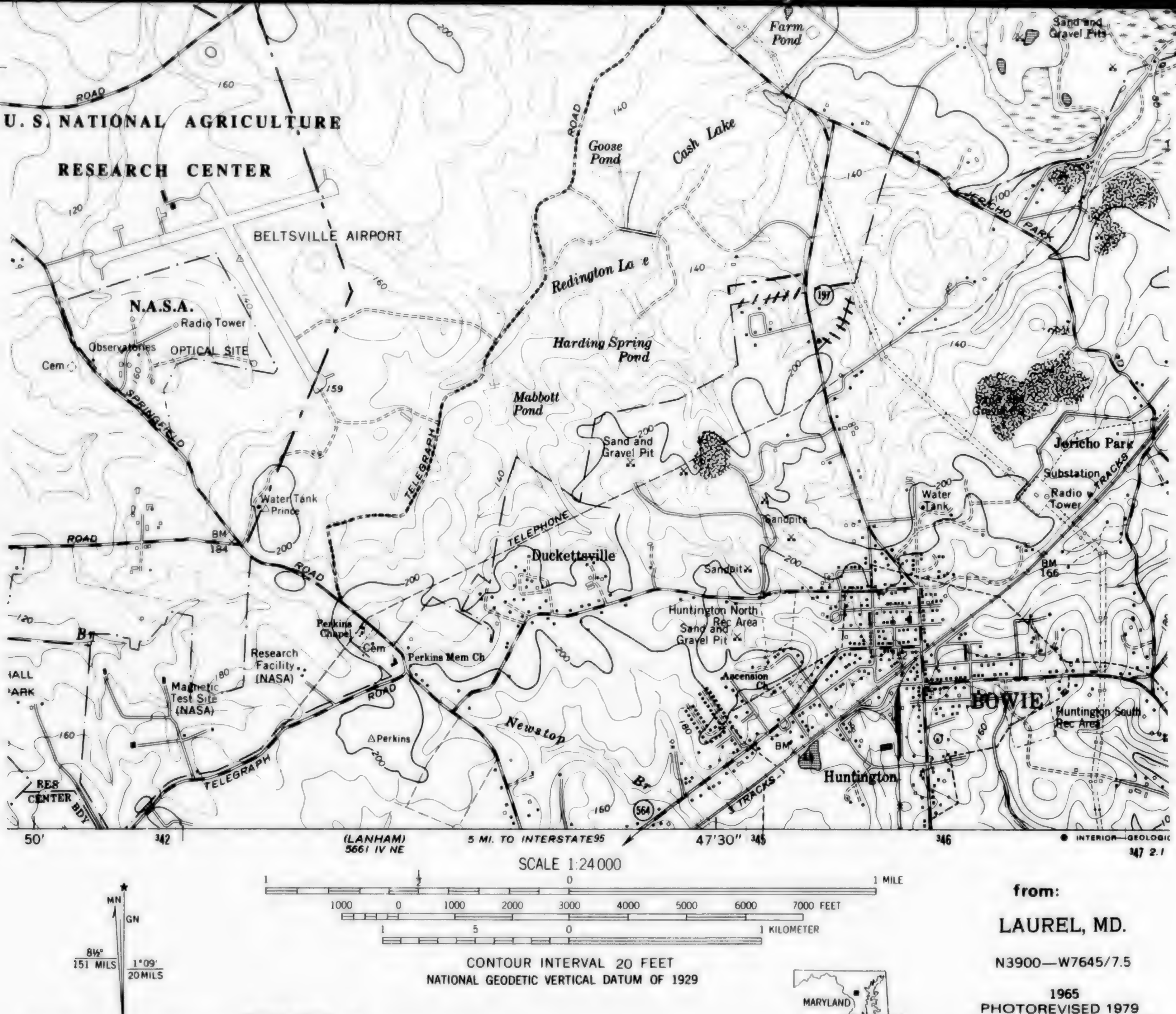

FIGURE 1.
Map of the Patuxent Wildlife Research Center.

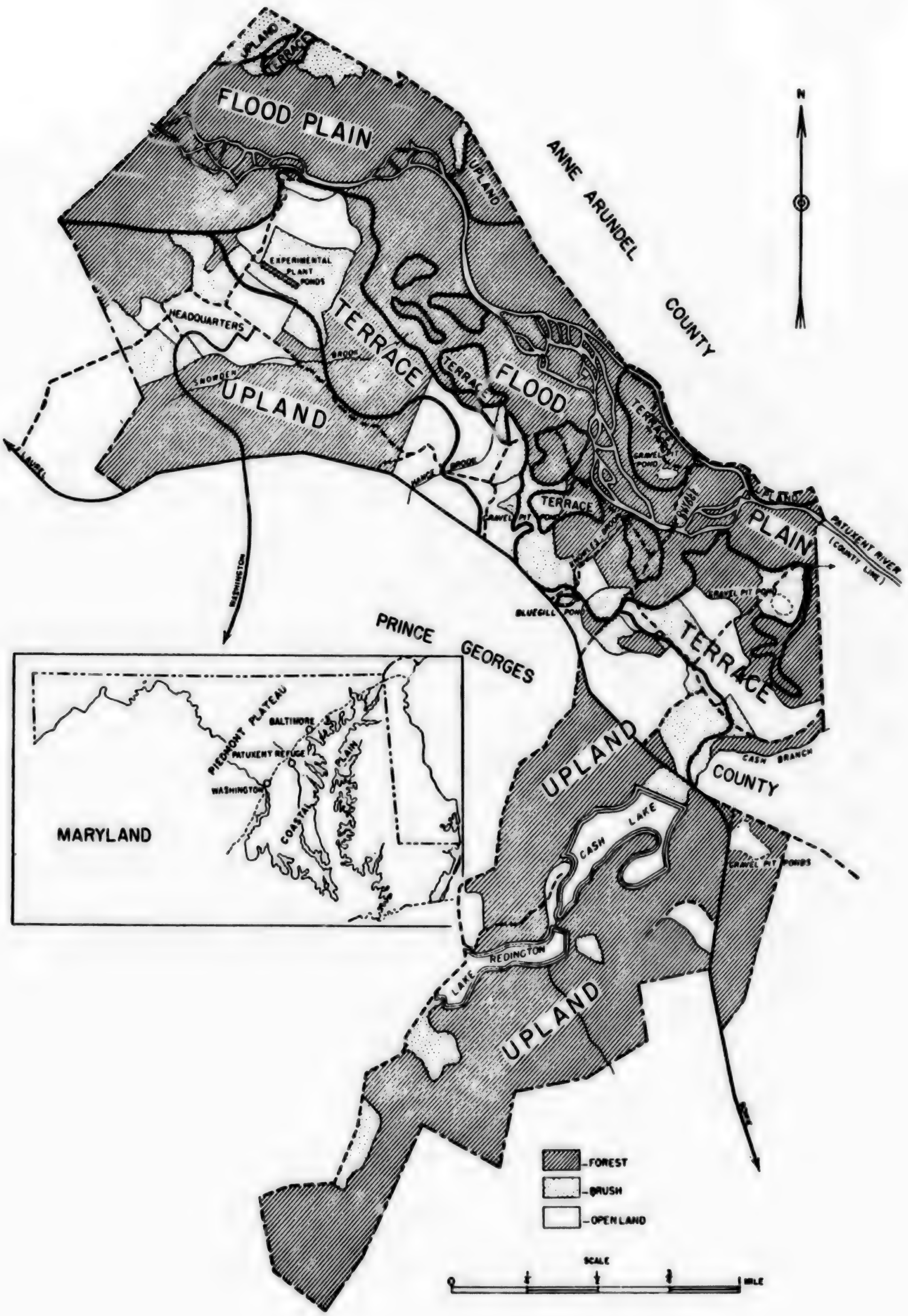

FIGURE 2. Location and Physiography – PWRC (1945)

(from Hotchkiss and Steward 1979; drawn by Mrs. Katheryne C. Tabbs) changes during the late Pleistocene and Holocene was made in 1986 by Steponaitis.

Flora and Fauna

The local effect of relatively minor alterations of temperature and moisture during the last 8,500 years was probably a fairly stable vegetational mosaic, trending from an early dominance of oak-hickory forest to a later dominance of oak-chestnut forest. Nonetheless, even minor fluctuations in the abundance or distribution of certain species important for human subsistence could have had substantial demographic and cultural effects. Prior to this period, the late glacial boreal forests were likely succeeded by a mixed deciduous/coniferous pattern. The existing vegetation characteristic of the PWRC -- again a mixture of conifers and deciduous trees -- "apparently is due largely to changes in edaphic conditions within the last three centuries" (Hotchkiss and Steward 1979:5).

Detailed analysis and mapping of the vegetation in the PWRC was done by Hotchkiss and Stewart, together with others, in the late 1930s and early 1940s (Figure 3). Regarding historical use of the area, they note that:

> Excepting the floodplain, nearly all [of the PWRC] appears to have been in cultivation at some time within the last one hundred years. Even the flood plain forest has been logged over, except on some of the islands between river channels (1979:5).

Despite historical disruption, the PWRC's flora is diverse and complex. The succession of plant communities differs in various areas depending on soil drainage characteristics as well as fertility. The proximity of distinct floodplain and upland climax communities provides an overall ecological richness likely to have been especially important to prehistoric human populations of the region, whose subsistence until the very end of the period was dependent on mast foods such as acorns and chestnuts, together with other seeds, berries, roots, fish, and game.

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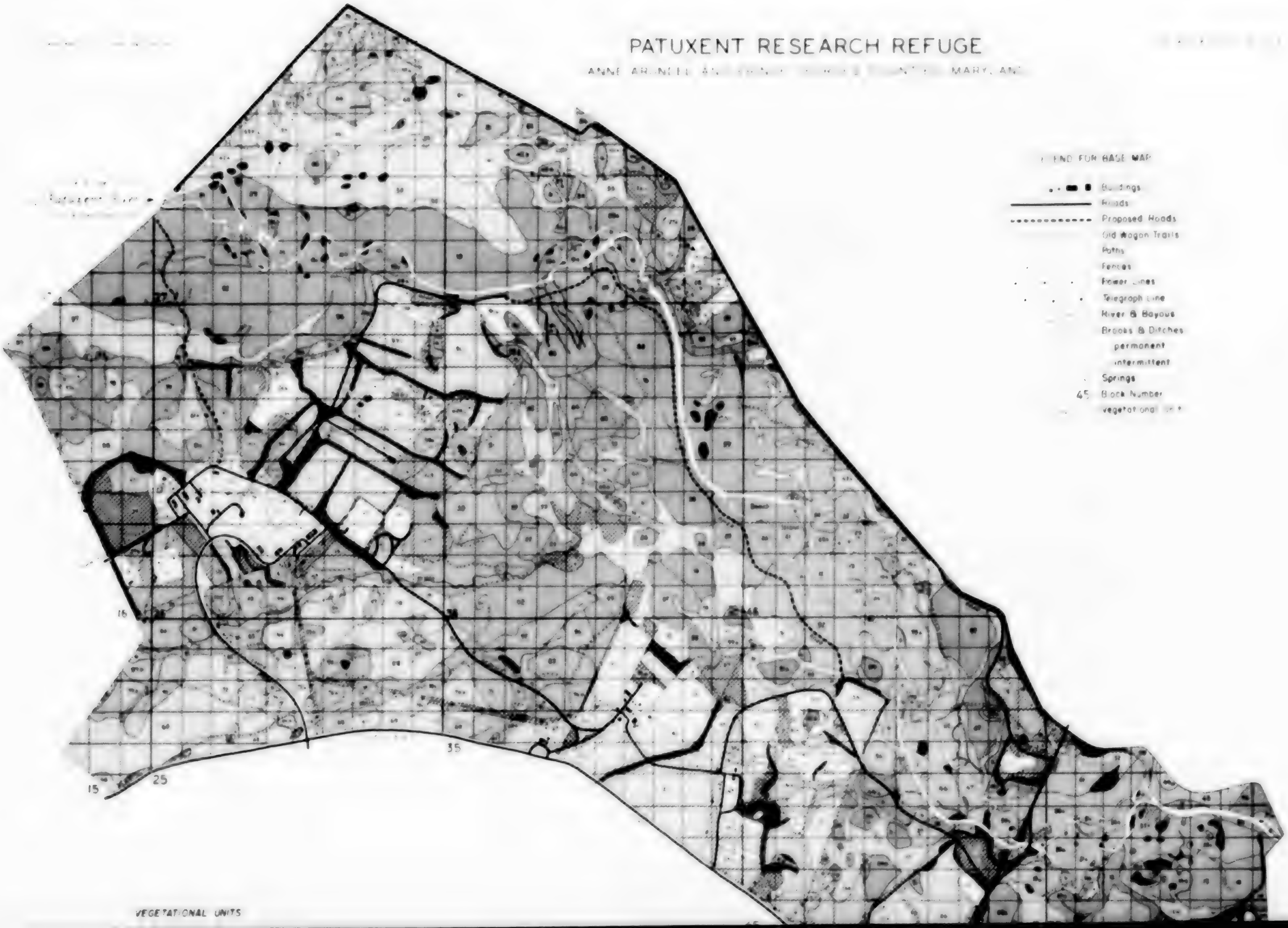

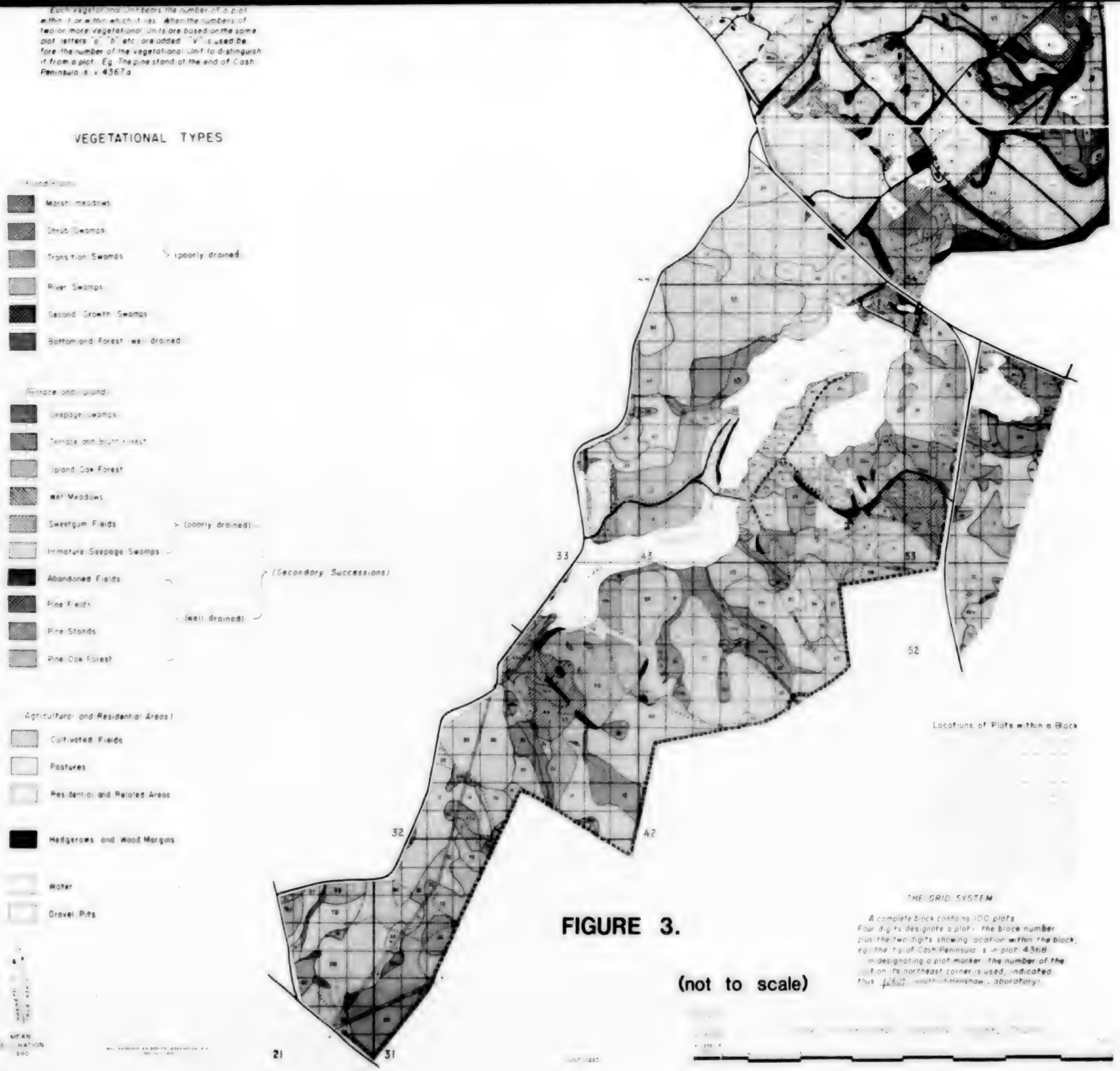

Each Vegetational Unit bears the number of a plot within it or within which it lies. When the numbers of two or more Vegetational Units are based on the same plot letters "a", "b" etc. are added. "V" is used before the number of the Vegetational Unit to distinguish it from a plot. Eg. The pine stand at the end of Cash Peninsula is v 4367a

THE GRID SYSTEM

A complete block contains 100 plots. Four digits designate a plot: the block number plus the two digits showing location within the block, eg. the tip of Cash Peninsula is in plot 4368.

In designating a plot marker, the number of the plot on its northeast corner is used, indicated thus 1262 (south of Henshaw Laboratory).

FIGURE 3.

(not to scale)

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The fauna of the PWRC vicinity is also diverse (Stickel 1979:91-120), although less so than during the prehistoric period and much of the historic. White-tailed deer, rare following historical development of the vicinity, are in recent years again common, and smaller mammals are also regularly seen and studied. It may be worth noting here that large predators native to the area were eliminated early in its historical development. Birds are also common. The abundance of migratory waterfowl is largely attributable to artificial ponds and wetlands, but lesser numbers would likely be present even in the absence of these features. Formerly, during prehistoric and early historic times, turkey was the most common large bird. The fish, amphibians, and reptiles, as well as birds and mammals, identified at the PWRC over the past fifty years are listed in Stickel.

The subsistence of prehistoric and early historic inhabitants of the region was clearly as dependent on native faunal resources as it was on floral, with deer and turkey the most important land animals in this regard. Fish, especially spring runs of anadromous species such as alewife, would also have been very important locally. Oyster, although not available in the PWRC vicinity, was undoubtedly of fundamental signficance to the subsistence of the mobile human populations who occupied the region during prehistoric times.

> Oysters were probably not abundant in the [Patuxent River] estuary until the Pleistocene terraces adjacent to the ancestral river were flooded [because of Holocene sea level rise] sometime after 5000 B.C., providing suitable shallow-water habitats (Wilke et al. 1981:23). Anadromous fish may have established annual runs in the Patuxent drainage by 4000 B.C. (Wilke et al. 1981:8). An increase in [estuarine] marsh development and the productivity of resouces associated with this habitat probably began by 1000 B.C., after sea level rise declined to its present rate (Wilke et al. 1981:23-24) [Steponaitis 1986:94].

The various archeological problems associated with the reconstruction of prehistoric subsistence and settlement systems are too complex to be addressed in this report, and I refer the interested reader to Steponaitis (1986:35-68, 77-90). There, several aspects of prehistoric and contact period subsistence are reviewed, including the seasonal availability of specific resources, the technologies employed in resource acquisition and processing, the practice of horticulture, and the probable influence of resource distribution patterns on settlement patterns.

PREHISTORIC RESOURCES

Background

The prehistory of southern Maryland is similar in its basic characteristics to that of other areas of the mid-Atlantic Coastal Plain. Local variations among the archeological cultures of the region are, in fact, often difficult to detect prior to the manufacture of various types of pottery, beginning about 1,000 B.C.

It is clear that human populations were present on the Coastal Plain by at least 9,000 B.C., and probably earlier in the Paleo-Indian period (11,000-7,500 B.C.). One projectile point from late in the period and another of mid-Paleo age have been reported for the Patuxent drainage (Steponaitis 1980:18; Curry 1978:2). Several researchers have suggested that the limited amount of data indicative of Paleo-Indians' presence on the Coastal Plain reflects the submergence of sites along waterways due to the rise of sea level during the Holocene. The traditional archeological interpretation of Paleo-Indian subsistence and settlement pictures them as migratory hunters of large game, including late Pleistocene mega-fauna. It is likely, however, that on the Coastal Plain, and in eastern North America generally, subsistence depended as much on smaller game, fish, and vegetable foods, as on large game. The lithic materials evidently preferred for tool manufacturing during the Paleo-Indian period (and the early part of the succeeding Early Archaic) are not naturally available on the Coastal Plain, and are most common in the mountains west of the Piedmont. The settlement pattern of Paleo-Indians may well have involved long-range forays both for materials and for subsistence.

The Archaic Period (7,500-1,000 B.C.), divided into Early, Middle, and Late subperiods, is archeologically a reflection of human populations' increasingly sophisticated adaptations to regionally available resources. This is reflected in the number of sites, in the diversity of tool kits, and in the use made of local lithic resources. Discrete territories and well-defined seasonal rounds are likely to have developed, perhaps earlier in the south than the north. Similar styles of projectile points, frequently diagnostic of particular phases of the period, are found throughout much of the eastern U.S. Deer is clearly the most important game animal during, and after, this period, but subsistence also involved a great variety of other sources of food, including shellfish. There are numerous Archaic, especially Late Archaic, sites within the Patuxent drainage. The settlement system is likely to have involved occupation of seasonal base camps by small, territorially defined groups, with still smaller groups making use of specific resource oriented work camps of limited duration. It may be that riverine marshes, and runs of anadromous fish, were particularly important for subsistence toward the end of the Archaic.

The Woodland Period (1,000 B.C.-A.D. 1600) is defined as beginning with the introduction of pottery, even though other aspects of culture, including projectile point types, overlap the Late Archaic/Early Woodland transition. The mid-Atlantic Coastal Plain appears to have been central to one of the regions within which transitional elements of material culture developed, possibly because the exploitation of shellfish for subsistence somehow conferred an advantage on populations there.

The effectiveness of Late Archaic/Early Woodland technologies, and of the subsistence and settlement systems within which they were employed, set the stage for a fundamental transformation of prehistoric cultures during the Middle Woodland. This is much more evident in the Ohio Valley, where the Adena and Hopewell complexes developed, than along the mid-Atlantic coast, but throughout the northeast, the social organizations and ideologies of local groups were being altered, possibly to cope with increasing populations, greater competition for resources, and the beginnings of horicultural food production. By the Late Woodland, (A.D. 1000-1600) the patterns of life observed and described by the first colonists were likely beginning to develop: cultivated foods -- corn, beans, and squash -- were increasingly important, and villages located near river banks (and cultivated fields) were beginning to function as ceremonial as well as residential centers. By 1600 populations were evidently concentrated in villages along estuaries, although coastal groups continued to hunt and collect food resources in riverine areas of the Coastal Plain, if not beyond it. Along the Patuxent, as along the Potomac, villages were apparently fortified at least occasionally against attack.

More details concerning regional and local prehistory, and the culture of the inhabitants of this region at the time of contact, are available in a variety of sources. (See especially Trigger 1978, and Steponaitis 1980 and 1986.) Very generally, "the coastal area was characterized by steady development . . . . The prehistoric traditions that lead to the historic cultures . . . extend back several thousands of years" (Snow 1978:60).

The characteristics of several archeological sites in the vicinity of PWRC are reviewed in the study which Laurie Steponaitis made of major collections of artifacts from the Patuxent drainage (1980), in Dennis Curry's reconnaissance report concerning the Baltimore-Washington Parkway (1978), in an archeological reconnaissance report for Fort Meade prepared by Gardner, et al. (1977), and in an archeological survey report concerning the BARC by Shiek (1984). These reviews indicate that most of the known prehistoric sites nearby the PWRC reflect repeated utilization throughout the Archaic and Woodland Periods. However, it is also clear that the majority of the artifacts from these sites are of Late Archaic and Early Woodland origin. These were evidently the periods of most intensive exploitation of local resources. The reasons for this, aside from the availability of resources (including these associated with the river and with areas of marsh on the floodplain of the river and its tributaries), are complex. Environmental factors, both climatic and biotic, are presumably a large part of the explanation (Gardner 1978, 1980), probably along with demography and broadly technological elements of human lifeways. The possible coincidence of a long-term decline in the abundance of terrestrial resources, due to a warm, dry climatic interval, with an increase in the abundance of riverine and estuarine resources, due to rising sea level, would account for the evident shift in the focus of subsistence and settlement systems during the Late Archaic.

Subsequently, more effective exploitation of estuarine resources, together with the increasing importance of horticulture during the Late Woodland, apparently concentrated populations downriver. Horticulturalists could well have had settlements in the general vicinity of the PWRC, however, and seasonal exploitation of resources certainly continued even into the colonial period.

Prehistoric Sites

In the PWRC itself, avocation archeology conducted by several of the center's staff over the past 50 years has resulted in the identification of a number of sites. Most of this archeology consisted of the collection of artifacts from plowed fields and other areas of disturbed ground. Many of these artifacts were catalogued in 1962, along with a substantial amount of provenience information. (The provenience, where available is generally given in terms of the system of numbered 330 ft. square plots, within 3,300 ft. square blocks, corresponding to the grid established for the PWRC during its initial, c. 1938 development).

The existence of these artifacts and of most of the sites they reflect was reported to the State Archeologist by Francis Uhler in 1976, and the reported sites were assigned state numbers. A site on the northeast side of the Patuxent was independently reported by Tom Mayr in 1972. A few other, unconfirmed sites have also been recorded. A copy of a map of the PWRC, the original of which is dated 1940/1941, was marked (c. 1950?) to indicate the locations where prehistoric artifacts had been found. The PWRC's collection of artifacts was evidently smaller when the map was made than in 1962, when the artifacts were catalogued. Additional artifacts were collected in 1986 in the course of archeological assessment and mitigation for new Whooping Crane pens (in the vicinity of Clusters E and F, below).

What is apparent from these data is the existence of several clusters of prehistoric artifacts, identified as follows: Clusters A and B (site no. 18PR159) on the floodplain margin of the large area of terrace north of the PWRC's headquarters; Cluster C (a previously unidentified site) overlooking the Knowles Marshes north and east of Cedar Lane; Cluster D (18PR163) on a former terrace of Cash Creek, now a shoreline west of the south end of Cash Lake; Clusters E (18PR162) and F (18PR312), overlooking Cash Creek east of Farm Pond, in the Rare and Endangered Species section of the PWRC; and Cluster G (18PR161), on a former terrace presently the site of the easternmost Duvall Pond. A few additional artifacts appear to have been isolated finds, or from relatively small clusters. Among the latter are 7 artifacts from the southwest side of Route 197 west of Bluegill Pond (18PR160), 7 from the garden of the Christian Farm (in the early twentieth century, the Harding Farm), southeast of Cash Lake, and three from the north shore of Lake Redington. Only one artifact in the PWRC's collection is reported as originating from the vicinity of 18AN224, on the northeast side of the Patuxent.

The clusters' characteristics, including the likely age of projectile points from them, are given in Table 1. The clusters' locations are shown in Figure 4, and Figures 5 and 6 illustrates several of the projectile points. More detailed information about the PWRC's artifact collection is provided in appendices of this report.

Every prehistoric period, excepting the Paleo-Indian, is represented among the projectile points collected at the PWRC, indicating that Native American use of area's resources began by at least c. 7,000 B.C. and continued until, and probably into, the period of European colonization following A.D. 1600. Although shifts in the degree of reliance upon specific local resources are likely to have occurred during this span of 8,600 years, together with changes in other aspects of culture, the extent of spatial overlap among artifacts varying so widely in age probably reflects certain "core" inducements to occupation and use of the area. The tendency of clusters/sites to be located on level, well-drained areas of terrace adjacent to floodplain marshes is an obvious indication of interest in the exploitation of resources from that context for subsistence. However, resources in both floodplain and upland biotic communities could have been effectively exploited from base camps near the ecotone between them, and areas on both sides of the river would be

TABLE 1

Prehistoric Artifact Clusters -- PWRC
Summary of Characteristics

	Clusters:								
	A	B	C	D	E	F	G	-	-
State (MD) Site Nos.	18PR159	18PR159	-	18PR163	18PR162	18PR312	18PR161	18PR160	-
Location (Plots)	2675-76 2686	2687-88 2697-98 2708	3559 4530-31 4540-41	4321-22 4332-42	5414 5422-23	5425-26 5433-35	5475-85 5505	4491	4317
Elev. AMSL (approx.)	110'	110'	110'	115'	95'	90'	85'	110'	140'
Soils*	EnA/MuA	EnA/MuA	EnA/EmA EeB2	CeB2 MuB2 StB2	EnA/GdB	EnA/GdB Ot	EnA	B1B2	StC2
Tot. No. of Artifacts	50	169	107	14	20	219	16	7	7
Prog. Pnts.									
Archaic									
Early	-	4	-	-	1	2	-	-	-
Middle	3	1	-	1	-	1	-	-	1
Late	15	37	11	4	3	51	4	3	3
Transtnl.	1	-	-	-	-	2	-	-	-
Woodland									
Early	1	4	2	-	-	2	-	-	-
Middle	1	5	1	2	-	6	-	-	-
Late	1	7	-	-	2	1	-	-	-
Pottery	-	2	-	-	2	1	-	-	-
Historical Artifacts	6	2	1	-	-	3	-	-	-

*Soils:
BeB2 - Beltsville fine sandy loam, 2-5% slopes
B1B2 - " " silt loam, 2-5% slopes
CeB2 - Christiana " " , " "
EnA - Elsinboro sandy loam, 0-2% slopes
EmA - " " loam, 0-2% slopes
GdB - Galestown-Evesboro loamy sands, 0-8% slopes
MuA - Mattapex silt loam, 0-2% slopes
MuB2 - " " silt loam, 2-5% slopes
Ot - Othello silt loam
StB2 - Sunnyside fine sandy loam, 0-5% slopes

(Kirby, et al. 1967)

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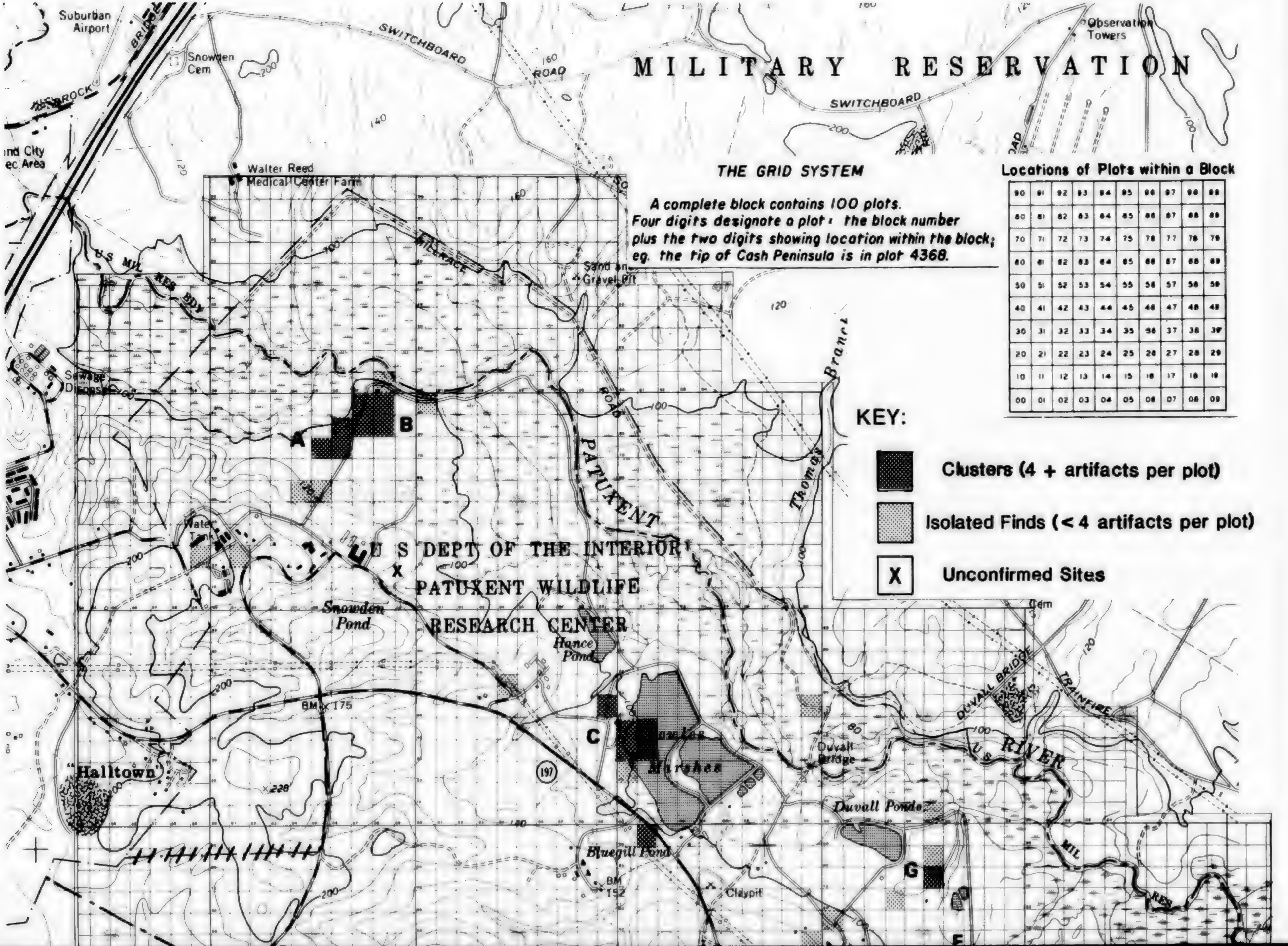

THE GRID SYSTEM

A complete block contains 100 plots. Four digits designate a plot: the block number plus the two digits showing location within the block; eg. the tip of Cash Peninsula is in plot 4368.

Locations of Plots within a Block

90	91	92	93	94	95	96	97	98	99
80	81	82	83	84	85	86	87	88	89
70	71	72	73	74	75	76	77	78	79
60	61	62	63	64	65	66	67	68	69
50	51	52	53	54	55	56	57	58	59
40	41	42	43	44	45	46	47	48	49
30	31	32	33	34	35	36	37	38	39
20	21	22	23	24	25	26	27	28	29
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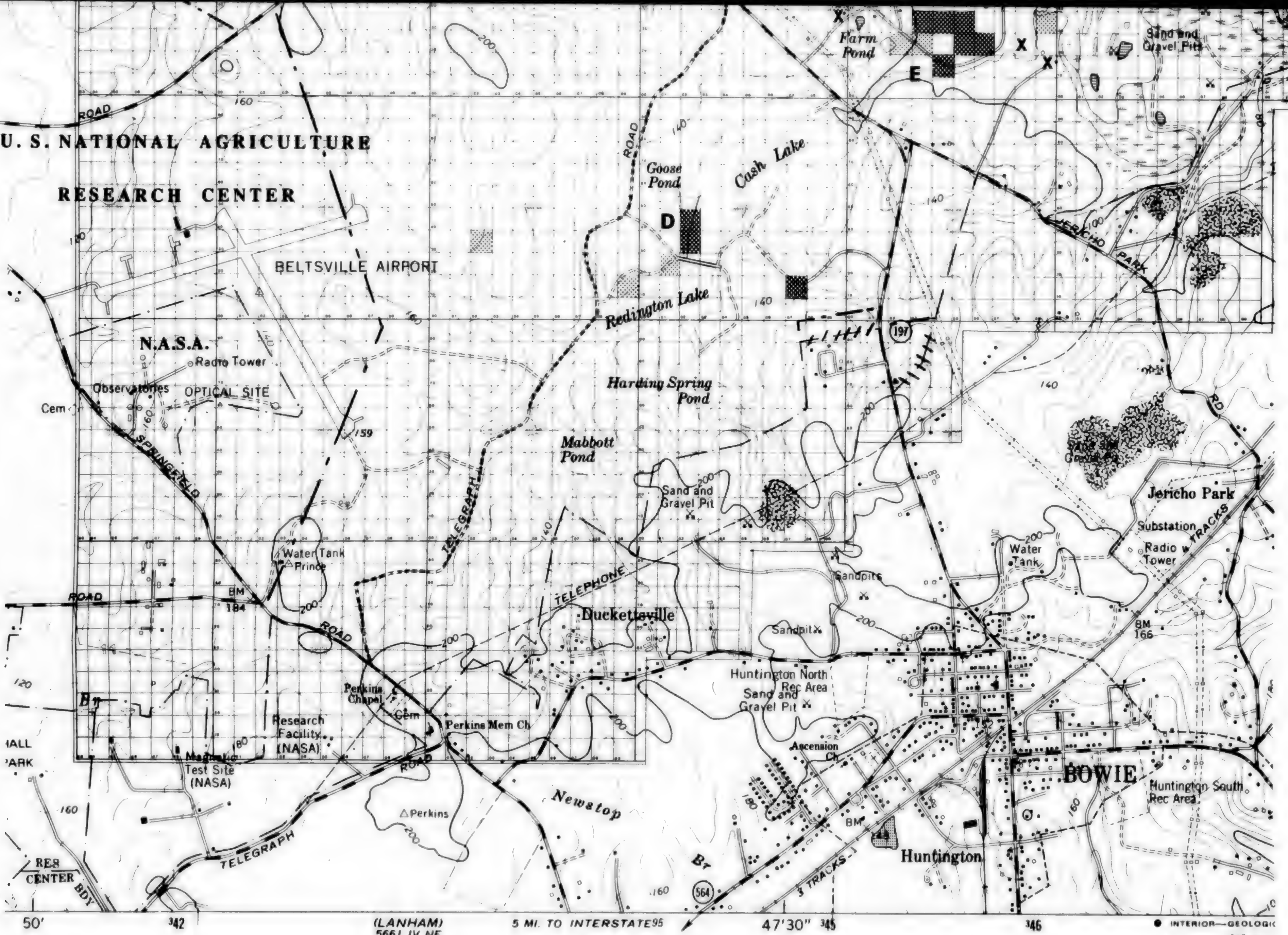
KEY:

▩	Clusters (4 + artifacts per plot)
▨	Isolated Finds (< 4 artifacts per plot)
X	Unconfirmed Sites



CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

from:

LAUREL, MD.

N3900—W7645/7.5

1965
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FIGURE 4.
Plan of Prehistoric Site Locations - PWRC.

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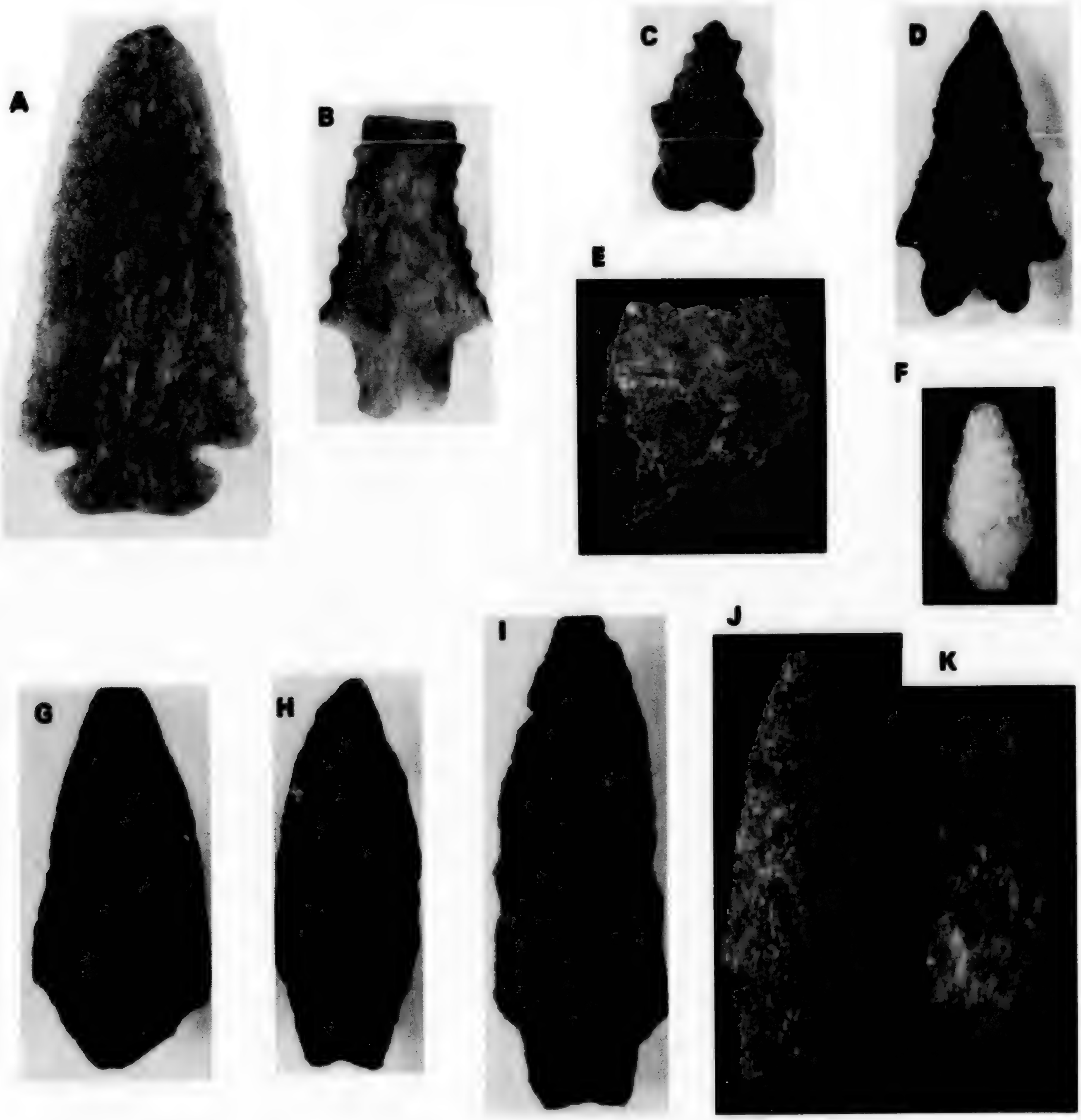

FIGURE 5. PROJECTILE POINTS collected at the PWRC — Early, Middle, and Late Archaic Periods. A) MacCorkle Stemmed (?), quartzite; B) Kirk Serrated, rhyolite; C) Bifurcate Base, rhyolite; D) Bifurcate Base, chert; E) Stanley-like, rhyolite; F) Piscataway, quartz; G) Morrow Mountain, quartzite; H) Guilford, ironstone (?); I-K) Holmes, quartzite. (Shown actual size. A-D are Early; E, G, & H are Middle; and F & I-K are Late Archaic.)

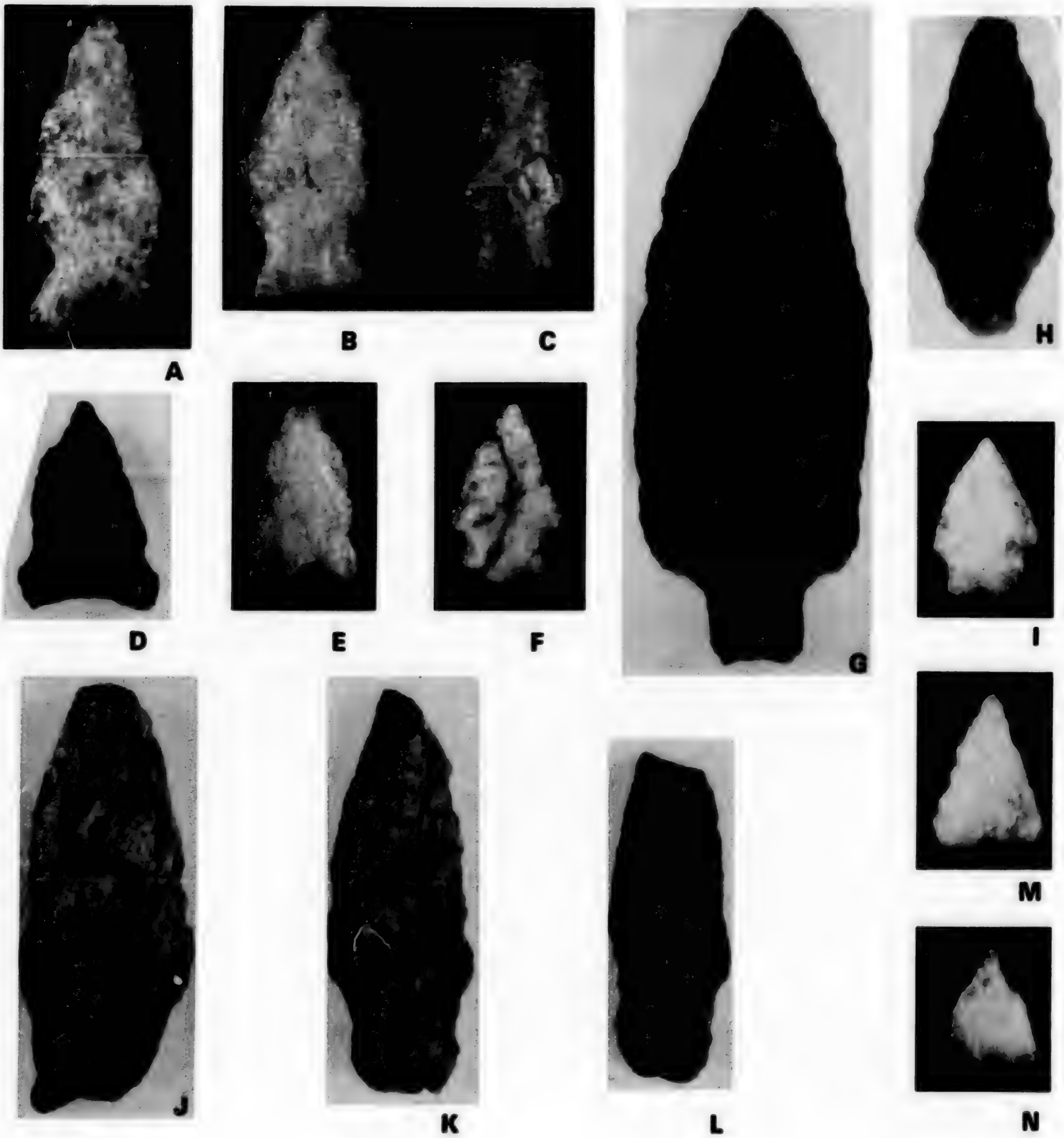

FIGURE 6. PROJECTILE POINTS collected at the PWRC — Late Archaic and Woodland Periods. A) Otter Creek, quartz; B & C) Brewerton Side-Notched, quartz; D) Brewerton Eared-Notched, rhyolite; E) Brewerton Eared Triangular, quartz; F) Vernon, quartz; G) Savannah River, quartzite; H) Rossville, quartzite; I) Calvert, quartz; J) Selby Bay Lanceolate, rhyolite; K) Selby Bay Stemmed, rhyolite; L) Selby Bay Side-Notched, rhyolite; M & N) Madison/Potomac, quartz. (Shown actual size. A-G are Late Archaic; H & I are Early Woodland; J-L are Middle Woodland; M & N are Late Woodland.)

more readily accessible from terrace locations than from upland sites. In addition, travel into and through the area, at least in the Woodland period and probably the Late Archaic as well, is as likely to have been by small boat as overland; boats, and provisions or equipment carried in them, would have weighed in favor of terrace camp sites. The ready availability locally of quartz and quartzite cobbles as raw materials for tool manufacturing is also likely to have been one of the factors influencing prehistoric settlement. Archeological excavations made during 1986 at the site of Cluster F (18PR312) resulted in recovery, among other artifacts, of large amounts of debris from the manufacture of stone tools.

Cultivation and other opportunities for collection of artifacts at the PWRC, however, have been largely confined to terrace areas and adjacent upland benches. Moreover, historic period erosion in upland areas and alluviation in the floodplain are likely to have made the identification of sites in these areas difficult at best. Nonetheless, numerous specific resource oriented work camps were likely situated in floodplain and upland areas. Moreover, such sites on the floodplain would probably, due to alluviation, be stratified, allowing finer chronological control over distinct components. Such sites, however, are unlikely to contain high densities of artifacts, and since historic period alluviation has undoubtedly buried them more deeply than they were previously, their discovery would be surprising. The point of these speculations is simply that the terrace sites do not provide a complete archeological record of prehistoric activities in the area.

The Late Archaic period origin of most of the projectile points in the PWRC's collection is consistent with the previously noted pattern of site age for the area. It presumably reflects an intensification of riverine resource exploitation during the period. The presence of other functional varieties of stone tools (knives, preforms, scrapers, drills, hammerstones, etc.) indicates the diversity of activities engaged in by the sites' occupants. Their presence also indicates that base camps -- seasonally established settlements which foraging parties regularly left and return to -- are the major source of prehistoric artifacts at the

PWRC. Transition camps and work camps, reflecting brief occupations, are probably also represented at the same terrace sites as the base camps, as well as in floodplain and upland areas.

Assessment of Significance

With regard to the significance of the prehistoric sites at the PWRC, the sites identified above as Clusters A-F are potentially eligible for nomination to the National Register of Historic Places because they have and will likely continue to yield important data concerning prehistoric lifeways. Cluster G (18PR161) is largely destroyed as a consequence of gravel pitting and consequently is not likely to be eligible. There is insufficient data to determine the potential eligibility of the sites of small clusters and isolated finds (including 18PR160 and 18AN224) but it would be advisable to regard them as potentially eligible. In addition, there may be other potentially eligible sites, as yet unidentified, particularly in areas of level, well-drained terrace not subject to cultivation or other ground disturbance during the PWRC's existence.

Based on what is known about upland sites in the region generally, such sites at the PWRC, while they probably exist, are not likely to yield important data regarding prehistoric lifeways, due to the limited range of activities they would reflect. Consequently, such sites are not likely to be National Register eligible. The discovery of upland sites at the PWRC, and a determination of their basic characteristics, would nonetheless aid in developing models of prehistoric settlement systems.

Similarly, floodplain sites at the PWRC would not be likely to contain a diversity or abundance of artifacts, and they would probably lack eligibility. Again, however, knowledge of the existence and basic characteristics of such sites would have archeological value. Furthermore, there is a chance of stratified sites in the floodplain, which, depending on the amounts and types of artifacts they contain, would perhaps provide sufficient relative chronological control to merit National Register eligibility.

The cultivation of PWRC fields had ceased prior to the acquisition of tract no. 44, so the presence of only two historic artifacts from there in the PWRC collection does not indicate that prehistoric artifacts are absent or rare. Because the physiographic situation is similar to that of confirmed base camp sites, the unconfirmed sites on tract no. 44 need to be regarded as potentially eligible for nomination to the National Register. In fact, the Rev. Schafer, who formerly owned the tract, is reputed to have collected an abundance of prehistoric pottery in the area, including incised specimens, and unauthorized excavation there reportedly revealed archeological materials (specifically, yellow jasper flakes) more than 4 feet below the present ground surface (Canine, personal communications 1987). These characteristics suggest the possible presence of a Late Woodland hamlet or village site and of a buried Paleo-Indian component. If confirmed, such sites would be very significant, and would clearly be eligible for nomination to the register.

HISTORIC RESOURCES

Background

The history of the Chesapeake Bay region began with the establishment of the Jamestown colony in Virginia in 1607, and was advanced, along with European settlement, by the foundation of the Maryland colony in 1634. "Although the first batch of Maryland colonists strung their houses around the southernmost part of the Potomac, those who came next tended to favor the Patuxent because the islands and peninsulas near its mouth seemed more defensible" (Kellock 1962:12). The larger populations of Indians along the Potomac are also likely to have detered settlement there, since the early policy of Maryland was to maintain friendly relations with local Indians (Feest 1978:243).

During most of the seventeenth century, colonization was largely confined to the estuaries of rivers. This was due primarily to the economic role of water transport and the relative abundance of fertile land along the lower portions of the Patuxent and other rivers. To some extent it was also because of hostilities with non-local Indians, particularly the Susquehannock and the Seneca. Thus, it was not until the 1680s and 1690s that patents began to be granted to parcels in the vicinity of the PWRC. A number of the settlers (and land speculators) in this early period were Quakers from Anne Arundel County. The establishment of Prince Georges County in 1696 reflected the western advance of colonial settlement along both the Patuxent and the Potomac, as did the virtual abandonment of the Western Shore by Indians in 1697.

The settlement system was agrarian, of course, and the crop which fueled its expansion was tobacco. Other crops were also grown, more for domestic use than trade, by the planters of the period, assisted by family, indentured servants, and less frequently (at first) slaves. The very successful planters, the rare individuals (and families) who engaged in a variety of profitable pursuits and could weather the frequent collapse in the market for tobacco, formed the political and social elite. Among such families were the Snowdens, the Moores, and the Duvalls, all of whom had substantial holdings in the PWRC area (Richardson 1967:95-97, 394; Cook 1976; see Table 2).

Besides securing the earliest patent to land in this area -- Robin Hood's Forest, dated 1686 and encompassing 1,976 acres -- the Snowdens were also among the earliest industrialists in Maryland, having established an iron furnace and forge nearby in Anne Arundel County during the 1730s. By at least 1794, and probably much earlier, the Snowdens also had a mill along the northeast side of the Patuxent, within what is now the PWRC (Figure 7).

Among other prominent landholders in the vicinity of the PWRC were Jacob Henderson, the rector of Queen Anne's Parish from 1718 to 1751 and "an astute businessman, buying and selling many tracts of land," and Robert Tyler (died 1738), an ancestor of President John Tyler and very active in the early political development of Prince Georges County (Hienton 1972:79-80). Both these men were related by marriage to the Duvalls.

The river remained very important for transportation throughout the early period of settlement. In 1733, not many years after the town of Queen Anne (now Hardesty, about 15 miles downstream from the PWRC) was established as the Patuxent's most inland port, "the river was cleared for 25 miles upstream." There were, however, "sholes and rapids" at several locations "so that the banks had to be cleared and roads made . . . in order that men or horses could drag their boats up and around . . . . In 1770 the channel again had to be widened above the town" for the mutual benefit of merchants in the town and planters upstream (Hienton 1972:134).

The combination of plantation agriculture, which during the eighteenth century was increasingly dependent on slave labor, and the economy's voracious appetite for wood, not only for lumber and as a household fuel but also for smelting iron and firing brick, resulted in the virtual destruction of the original forests of southern Maryland, and in erosion which clogged the very streams needed for transportation. However, by

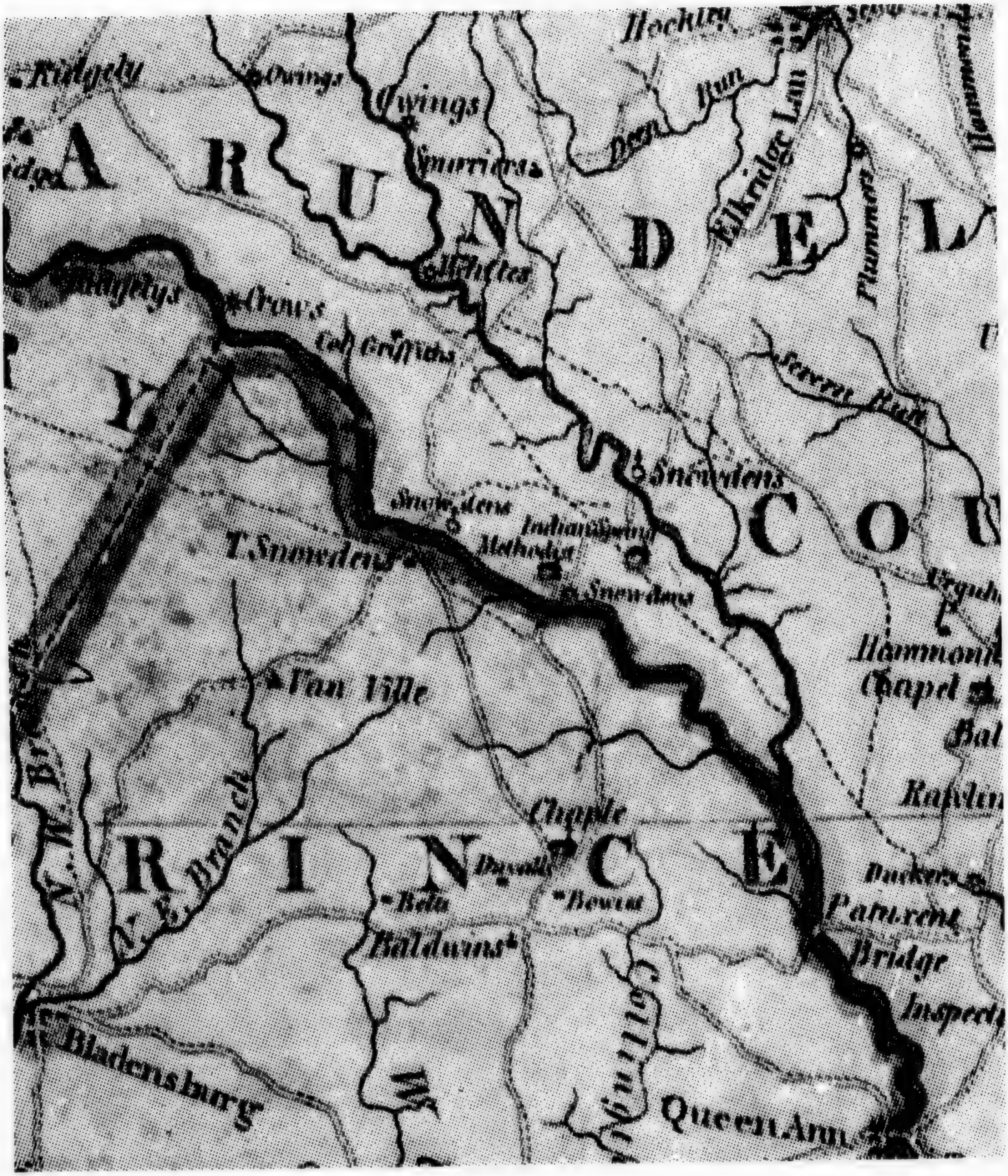

FIGURE 7. Detail from Griffith's Map of Maryland - 1794.

TABLE 2

Colonial and Post-Colonial Land Patents
Patuxent Wildlife Research Center Vicinity - Maryland

Patent	Patentee	Date	Size	County
Robin Hood's Forest	Richard Snowden	Aug. 1, 1686	1,976 acres	A.A. & P.G.
Jerricoe (Jerricho?)	(Robert Twigg?)	July 10, 1704	895 "	P.G.
The Lott	?	Aug. 21, 1704	1,199 "	"
Battson's Vineyard Rectified	?	Nov. 5, 1705	800 "	"
Piney Hedge	William Moore	Aug. 10, 1713	88 "	"
Tyler's Pasture	Robert Tyler	Aug. 10, 1715	275 "	"
Moore's Industry	John Moore	Oct. 21, 1718	342 "	"
Mitchell's Addition	John Mitchell	Sept. 16, 1720	150 "	"
Pleasant Grove	Jacob Henderson	Oct. 19, 1732	1,632 "	"
Beck's Chance	James Beck	June 10, 1734	100 "	"
Beck's Addition	" "	Nov. 27, 1735	300 "	"
Talbott's Adventure	Samuel Duvall	July 27, 1737	272 "	A.A.
Friendship	?	Aug. 10, 1753	380 "	P.G.
Parcel Enlarged	James Beck	May 21, 1750	832.5 "	"
First Meadow	" "	Apr. 22, 1763	24 "	"
Part of Mitchell's Addition Enlarged	John Mitchell	Nov. 15, 1768	168.25 "	"
Pleasant Springs Enlarged	James Beck	Mar. 31, 1777	783 "	"
Snowden's New Birmingham Manor	John Snowden	June 23, 1785	16,038 "	A.A. & P.G.
Interval	William Waters	July 24, 1793	15.75	P.G.
Forest Manor	Zadock Duvall	Dec. 22, 1797	382.75 "	"

TABLE 2
(Continued)

Colonial and Post-Colonial Land Patents
Patuxent Wildlife Research Center Vicinity - Maryland

Patent	Patentee	Date	Size	County
Perplexity	Edward Waters	Apr. 20, 1802	468.5 "	"
Contention	C. Duvall, *et al.*	Mar. 26, 1816	242.75 "	A.A.
Addition to Forest Manor	Z. Duvall (?)	Aug. 20, 1854 (?)	254 "	P.G.

Other patent names cited in property records: Addition to Jericho; Batsons; Cherry Walk; Carrick's Delight; Locust Park; Locust Thicket; Peach's Forest; Moore's Delight; Moore's Discovery; Riley's Hazard; Water's Chance, Welch's Chance; Welch's Chance Enlarged.

The sources for this table are a sketch plan in the PWRC's property files which shows a number of early patents, and a surveyor's certificate in the file for the Hayden tract (tracts nos. 4 and 18). These files are at the Fish and Wildlife Service Regional Office in Newton Corner, Mass.

the beginning of the nineteenth century the maturing economy of the newly independent nation was focused more than ever before on larger towns and cities, and reliable overland and water transportation links with them were crucial. In the Patuxent area, Baltimore and to a lesser extent Washington became the urban marketplaces for local agricultural products. By 1827 the road between these markets, which passed nearby the PWRC (now U.S. Route 1), was made a turnpike. The Maryland Canal, proposed during the 1820s but never built, would have been an additional nearby connection between the two cities (Figure 8). What was built instead, along much of the same route as the proposed canal, was the Washington Branch of the Baltimore and Ohio Railroad (Figure 9), completed by about 1840. Samuel F. B. Morse's first telegraph line, which passed directly through the PWRC area, followed in 1844.

The economy of the PWRC vicinity remained agrarian, and slavery was crucial to the local plantations, one of the largest of which was established by Dr. Charles Duvall by means of property acquisitions made between 1811 and 1850. Tobacco was still the most important crop, but other crops, especially grain, were also important, and increasing use was being made of more modern agricultural methods, including the application of fertilizer (Walsh and Fox 1983:217). The development during and after the 1840s of the small industrial town of Laurel, approximately 2.5 miles northwest of the PWRC, as well as the growth of the larger urban markets, especially Baltimore, undoubtedly provided opportunities for crop diversification.

The Civil War and its consequences, including the emanicipation of slaves and the long agricultural depression of the 1870s, for obvious reasons brought about the demise of plantation agriculture in southern Maryland. This, together with the rise of large and profitable industrial enterprises in Baltimore and other cities, and the decline of small mills and ironworks, shifted the economic, political, and social balance more and more away from rural areas. In practical terms, one of the most direct effects of agrarian labor scarity following the Civil War was the reduction in the size of farms, and an increase in their number. A

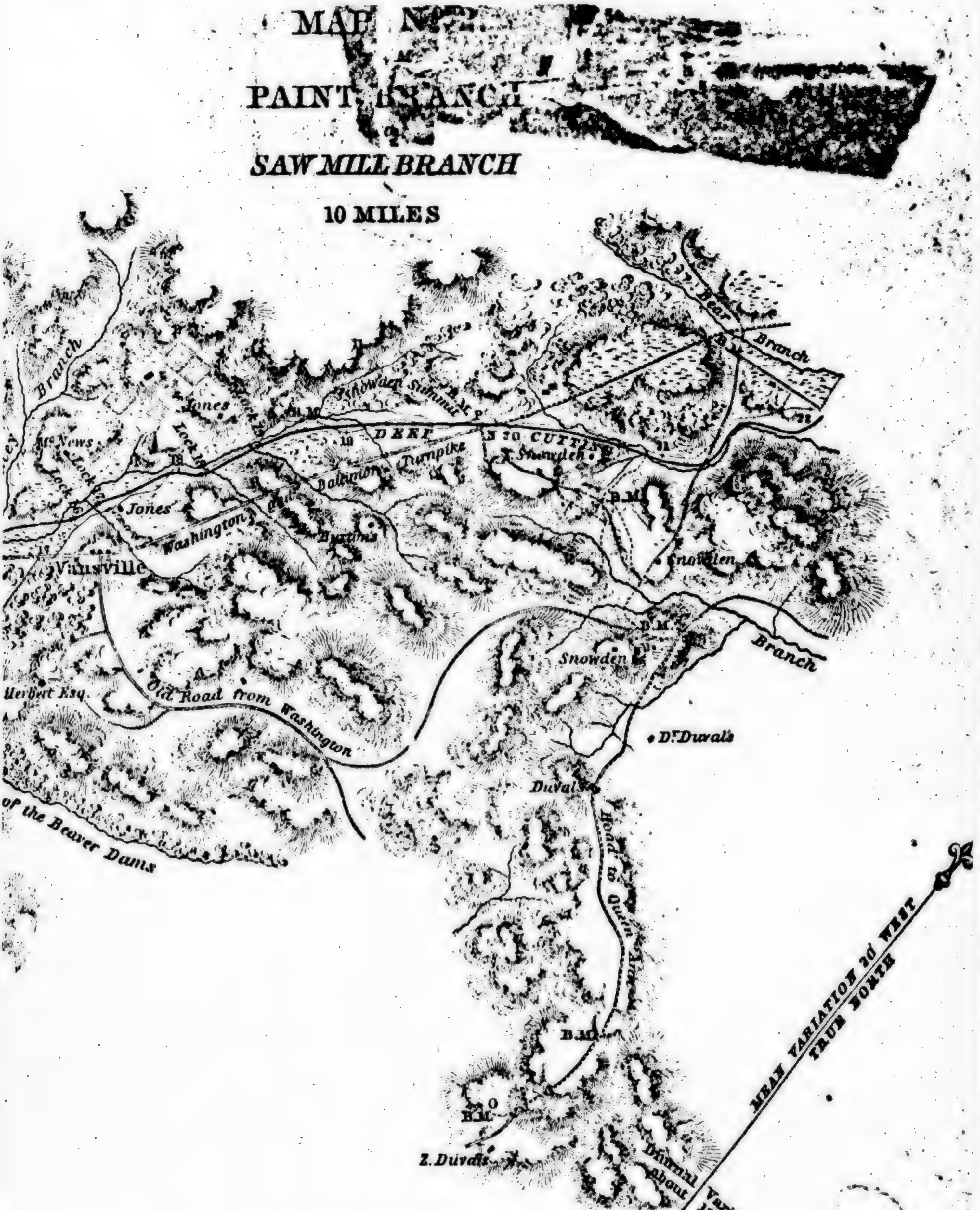

FIGURE 8. Detail from Map No. 2 of the Maryland Canal Plans – 1827.

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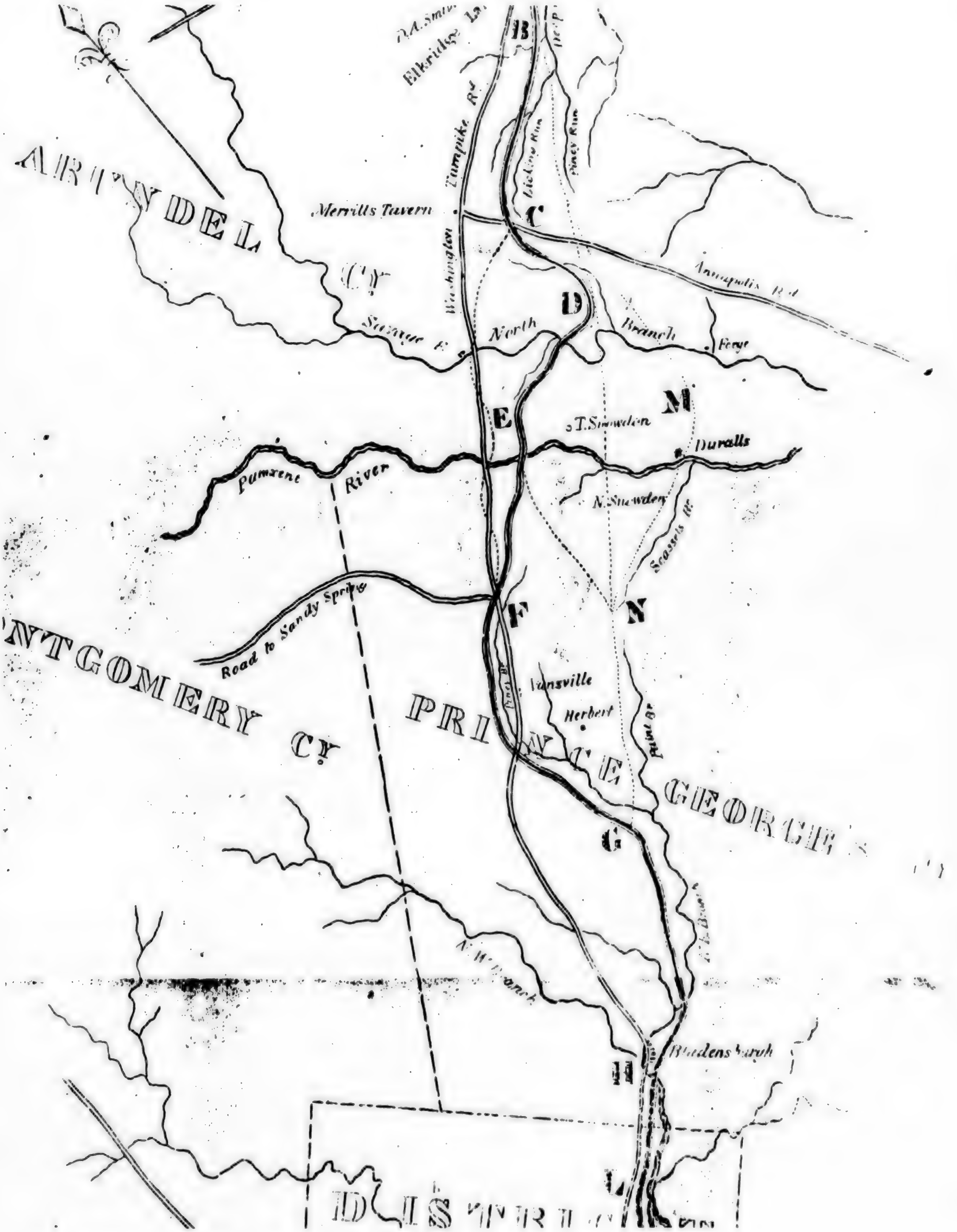

FIGURE 9. Detail from Latrobe's Map of the Proposed Washington Branch Railroad - 1831

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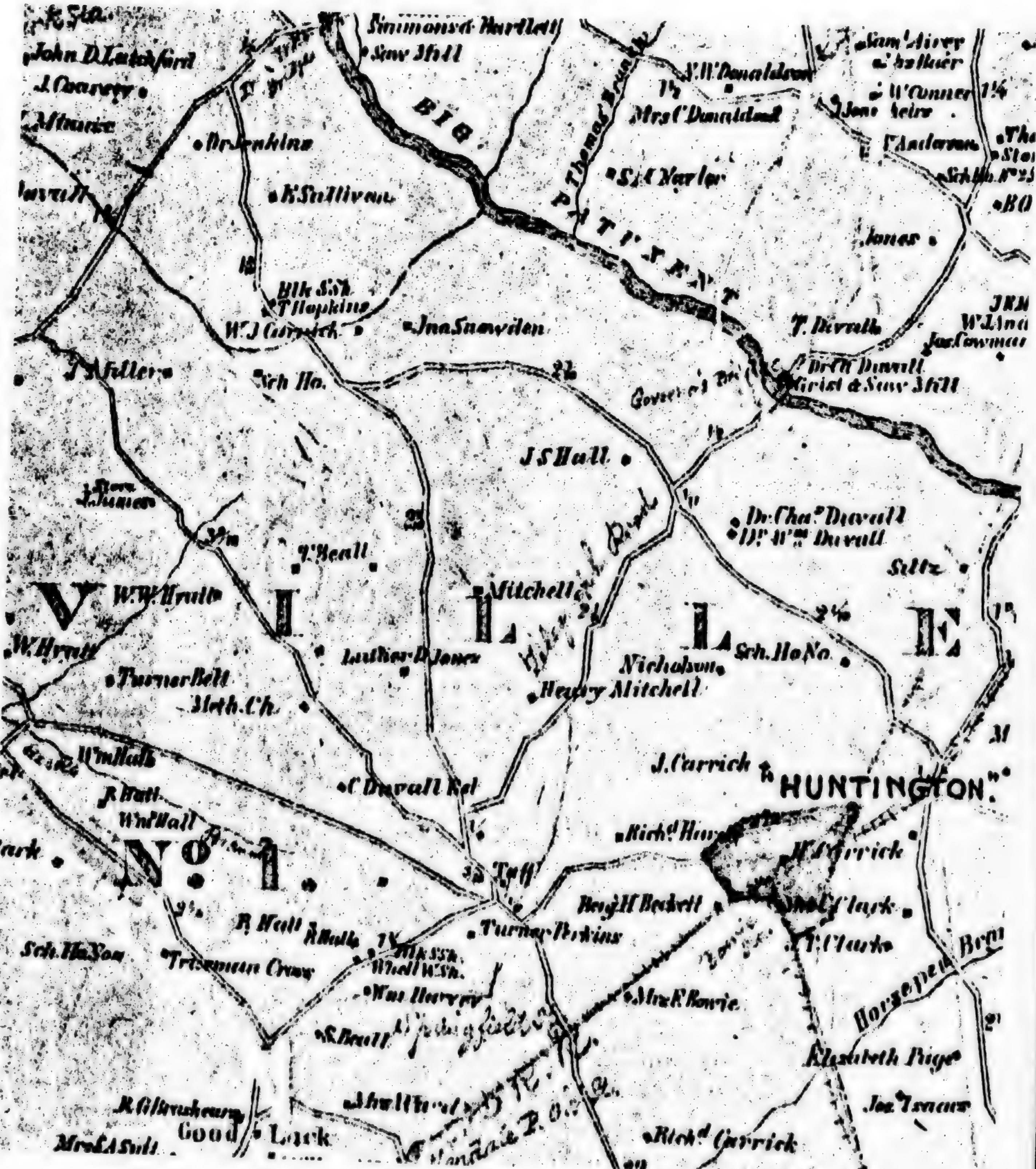

FIGURE 10. Detail from Martenet's Map of Prince George's County – 1861.

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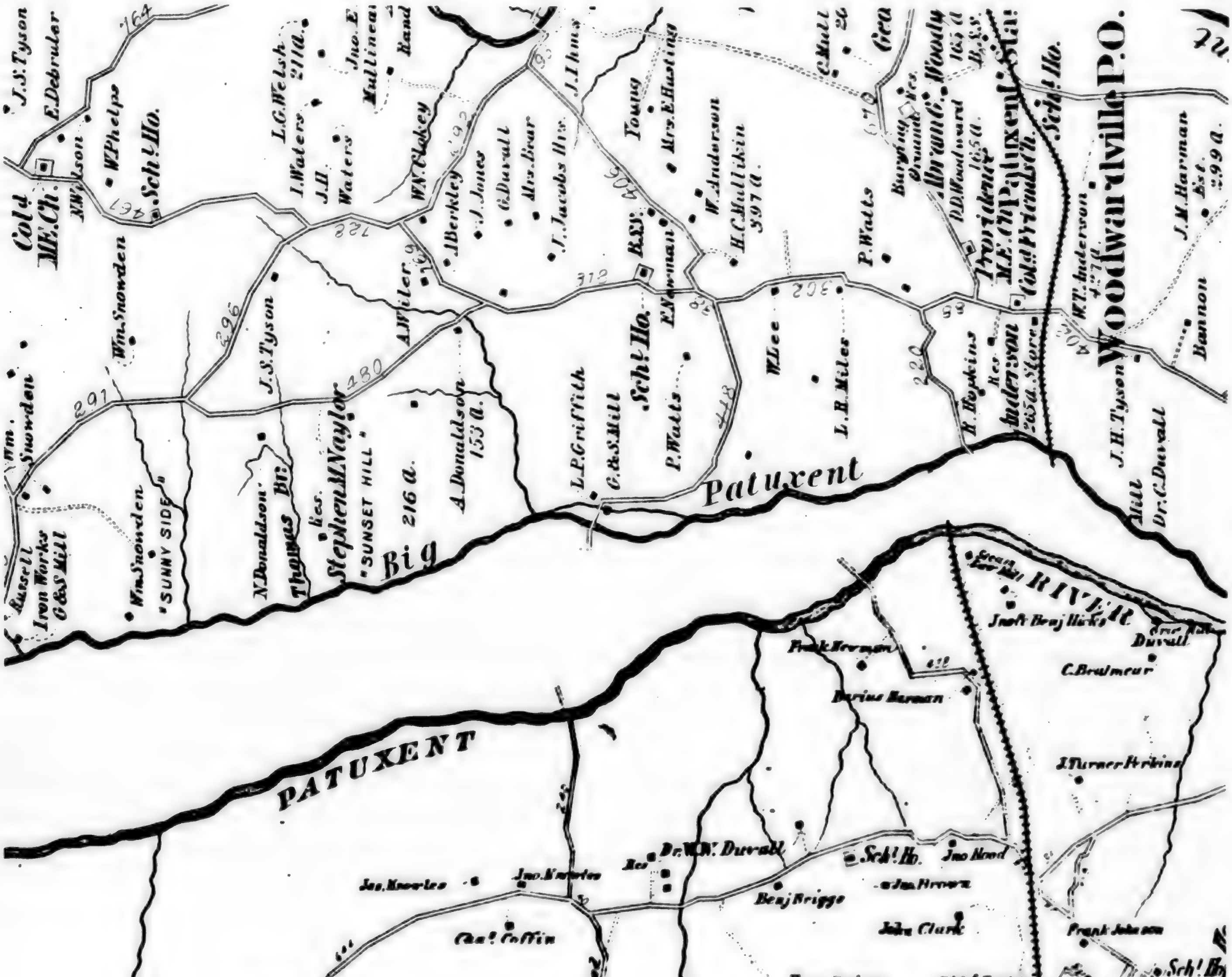

FIGURE 11. Details from Hopkins' Maps of Anne Arundel and Prince George's Counties - 1878.

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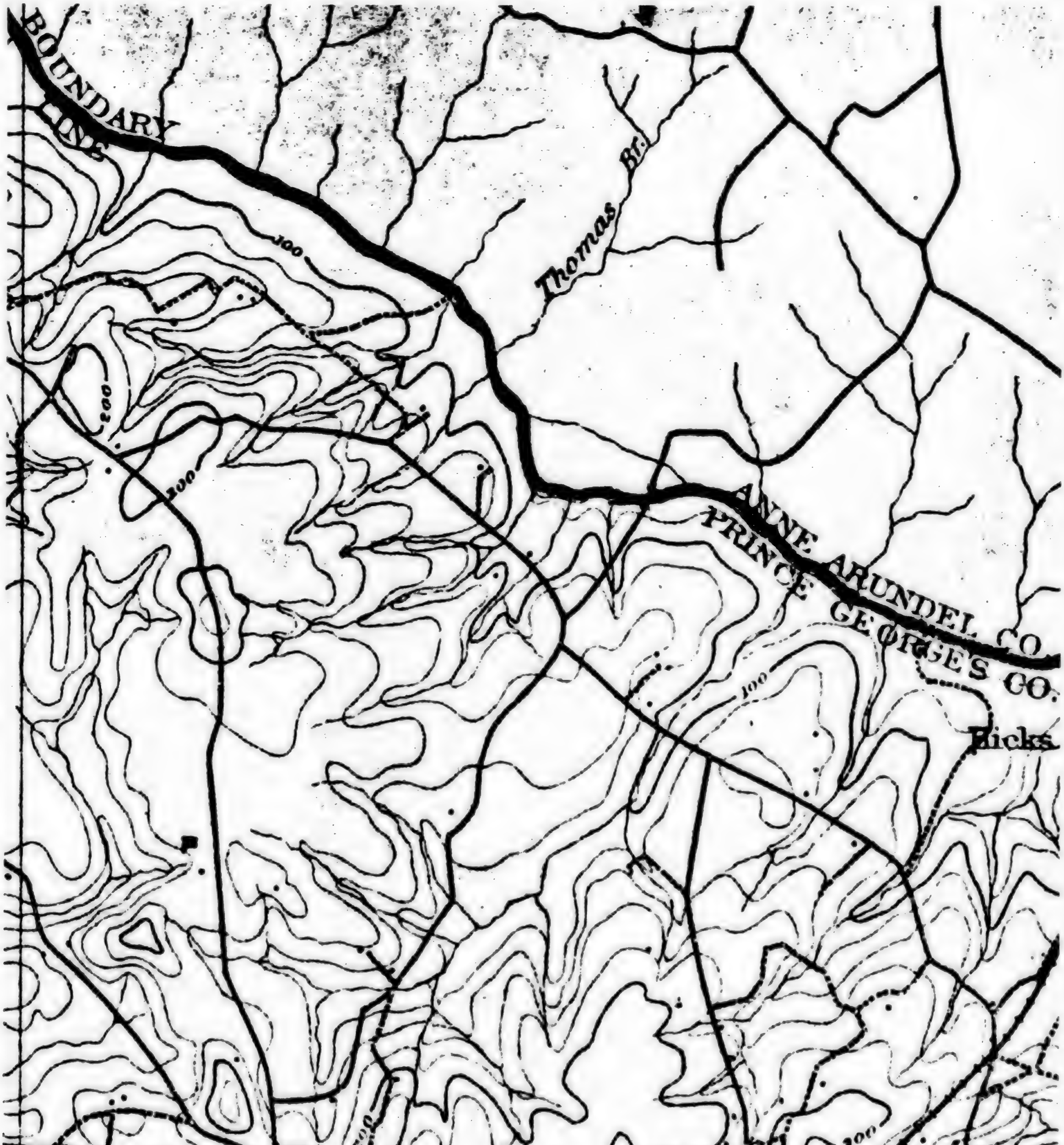

FIGURE 12. Detail from the Maryland Geological Survey's Map of Prince George's County - 1903.

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comparison of maps of the PWRC vicinity dating to 1861, 1878, and 1903 (Figures 10-12) certainly indicates that this trend held true there, as does a review of ownership history. Where there had been 7 households in 1861, there were approximately 10 in 1878 and 14 in 1903. (Slaves' residences were not shown on the earliest of these maps, so some of this increase in number of households merely, though indirectly, reflects their emancipation.) At the same time, some previously cultivated acreage was evidently allowed to revert to forest. It was during the post-Civil War period also that Bowie State College (originally an exclusively Black teacher's college) was established two miles west of the PWRC, and that Halltown and Duckettsville began to develop at the western and southeastern boundaries of the PWRC.

Although the social and economic conditions of some households in the area may have been improving prior the Great Depression of the 1930s, for others, such as tenant farmers, conditions were at best stable. Increasing disinterest on the part of owners in the value of land for farming is reflected by the open-pit mining of areas of the PWRC for sand and gravel, and possibly iron ore, which appears to date mainly to the late nineteenth and early twentieth century. There should have been little reluctance for owners to accept, in the midst of the depression, the U.S. Government's purchase of the various tracts which went into the creation of the PWRC, beginning in 1936. Nonetheless, in 1940, several tracts in Anne Arundel County were acquired through condemnation. Among the various federal programs for economic relief and social improvement which lay behind the acquisition of these tracts, the most important was the Farm Resettlement Administration (Morley 1949:2-10).

The early history of the PWRC (1936-1948) is very clearly and valuably provided in Dr. L. B. Morley's report (1949). The development of the PWRC entailed construction of diverse facilities, including lakes, ponds, fences, and roads as well as laboratories and staff housing. It also required the demolition of several delapidated buildings for which there was no further use: several owner and tenant farm dwellings and old slave quarters, together with various barns and sheds. The operation of two farm units, however, was continued into the 1960s. These were Control Farm B, encompassing what had been the Hance and J. B. Knowles farms (tract nos. 105 and 104), and Conservation Farm A, which had been a tenant farm owned by Fred Kluckhuhn (tract no. 99). Cultivation of fields also continued on the Hopkins tract (no. 145), where the PWRC headquarters and main laboratories were constructed.

The initial development of the PWRC during the late-1930s/early-1940s was followed by several years of relative stability. During the 1950s and 1960s, however, several new buildings were constructed, and between 1969 and 1980, various acquisitions of property increased the size of the PWRC from about 2,700 acres to about 4,700 acres. Most of this additional property had been in the U.S. Forest Service section of the BARC, south of Maryland Route 197 and west of Telegraph Road, but several privately owned tracts at the eastern end of the PWRC were also acquired. Most of the former Forest Service area is, of course, forested and had been when initially acquired by the U.S. in the mid-1930s, except for an estimated 300-400 acres then under cultivation. The latter acreage was for the most part made into experimental forest or allowed to revert to natural succession forest, with the exception of a headquarter area along Route 197 (on tract no. 97), and of a cultivated area along the western boundary of the PWRC, south of Beltsville Airport. At the east end of the PWRC, the additional property consisted of a few very small farms, and of areas which had been extensively mined for gravel.

The physical plant of the PWRC continues to evolve in keeping with its wildlife research mandate. Although an up-to-date history of the PWRC's administrative, scientific, and physical development cannot be provided here, such a history would undoubtedly aid land and cultural resource management, and would establish a broader basis for understanding the PWRC's recent past and likely future.

Historic Sites - Introduction

The sites of historic residences, mills, roads and other "made" features of the PWRC are the subject of the brief discussions which follow. As will be apparent, less (in some cases virtually nothing) is known about some sites then about others, and no site can be fully described using currently available information. As noted in the introduction, the existing, post-1936 facilities of the PWRC are largely ignored, although brief mention is made of a few facilities which are now abandoned. Maps, photographs, secondary historical sources, and property records were the sources for the information presented below. The locations and mapping dates of historic sites are summarized in Table 3; the maps, details from several of which are reproduced above, are listed in Appendix C. Figure 13 shows the known or estimated locations of the historic sites.

Roads

The historical road system of the PWRC vicinity was first effectively documented by Griffith's 1794 map of Maryland (figure 7, above), but by then the development of this basic element of social and economic activity is likely to have been under way for nearly a century. To a limited extent, during the eighteenth century, the Patuxent River served as an alternative transportation route, particularly for moving goods to the port of Queen Anne. But, as noted above, the river had shallows and rapids which would have made it a cumbersome alternative to overland transport, especially during periods of low water flow. Regional economic development necessitated the evolution of a broad-based overland network, even more so after the Revolutionary War than before.

By 1794 there were evidently three roads in the vicinity of sufficient importance to have been surveyed. The earliest of these (c. 1710?) is likely to have been the one which extended northwest-southeast between the Montpelier Mansion area west of the PWRC and the Holy Trinity Church - Collington area south of the PWRC. Roads from Upper Marlboro, Queen Anne, Bladensburg, and Annapolis converged about one

TABLE 3

Historic Archeological Sites at the Patuxent Wildlife Research Center

Site	Key*	Tract No.	Plot No.	Mapping Dates
Snowden/Duvall Mill	A	9	5550/5551	1794, 1831, 1861, 1926, etc.
Snowden Hall	B	145	2623	1861, 1878, 1903, 1936, etc.
Goodwood/Gladswood	C	99	4439/4449	1861, 1878, 1903, 1936, etc.
Mitchell/Hoffman	D	96	3271/3272	1861, 1878, 1903, 1936, etc.
Mitchell II	E	118	2388	1861, 1878
Hoffman II	F	96	3264	1903, 1926
Hall/Coffin	G	97	4480	1861, 1878, 1903, 1936, etc.
Briggs/Harding	H	123	4317	1861, 1878, 1903, 1936, etc.
Briggs II	I	123	5365 (?)	1878
James N. Knowles	J	104	4520/4530(?)	1878
John W. Knowles	K	112	4493	1878, 1903, 1936, etc.
James B. Knowles	L	104	3549/3559	1903, 1936, etc.
Hance I	M	145/145a	2627/2628(?)	1878
Hance II	N	105	3565	1903, 1936, etc.
Duvall/Schafer	O	44	5419/5429	1878, 1903, 1936, etc.
Log House	P	114	3562/3563	1936, 1940, 1946, 1965, etc.
Millard N. Schafer	Q	45a	5374/5384	1936, 1940, 1946, 1965, etc.
Milton R. Schafer	R	48	6360	1946, 1965, etc.
McMillan/Harder	S	50/43	5367	1903, 1936, 1940, 1965, etc.
Herman Mitchell	T	47	5382	1936, 1946, 1965, etc.
Tract 18-I	U	50/43	2204/2214	1903, 1936
Tract 18-II	V	47	2215	1940, 1946, 1965, etc.
Tract 4	W	4/100	3180	1903, 1926
Tract 100	X	100	3194	1903, 1936
Tract 125	Y	125	2307(?)	1903, 1926, 1936 (?)
Tract 131	Z	131	3348/3358	1903, 1926, 1940
Tract 146-I	AA	146	3164/3165	1940
Tract 146-II	BB	146	3175	1940, 1961 (plat)
PWRC Sawmill	CC	145	1628	-
PWRC Picnic Grounds	DD	145	1599/1609	1965
PWRC/BARC Tipple	EE	96	3265	1951
BARC Warehouse	FF	18	3230	1946, 1965, etc.

*Key to letter designations of sites on Figure 13.

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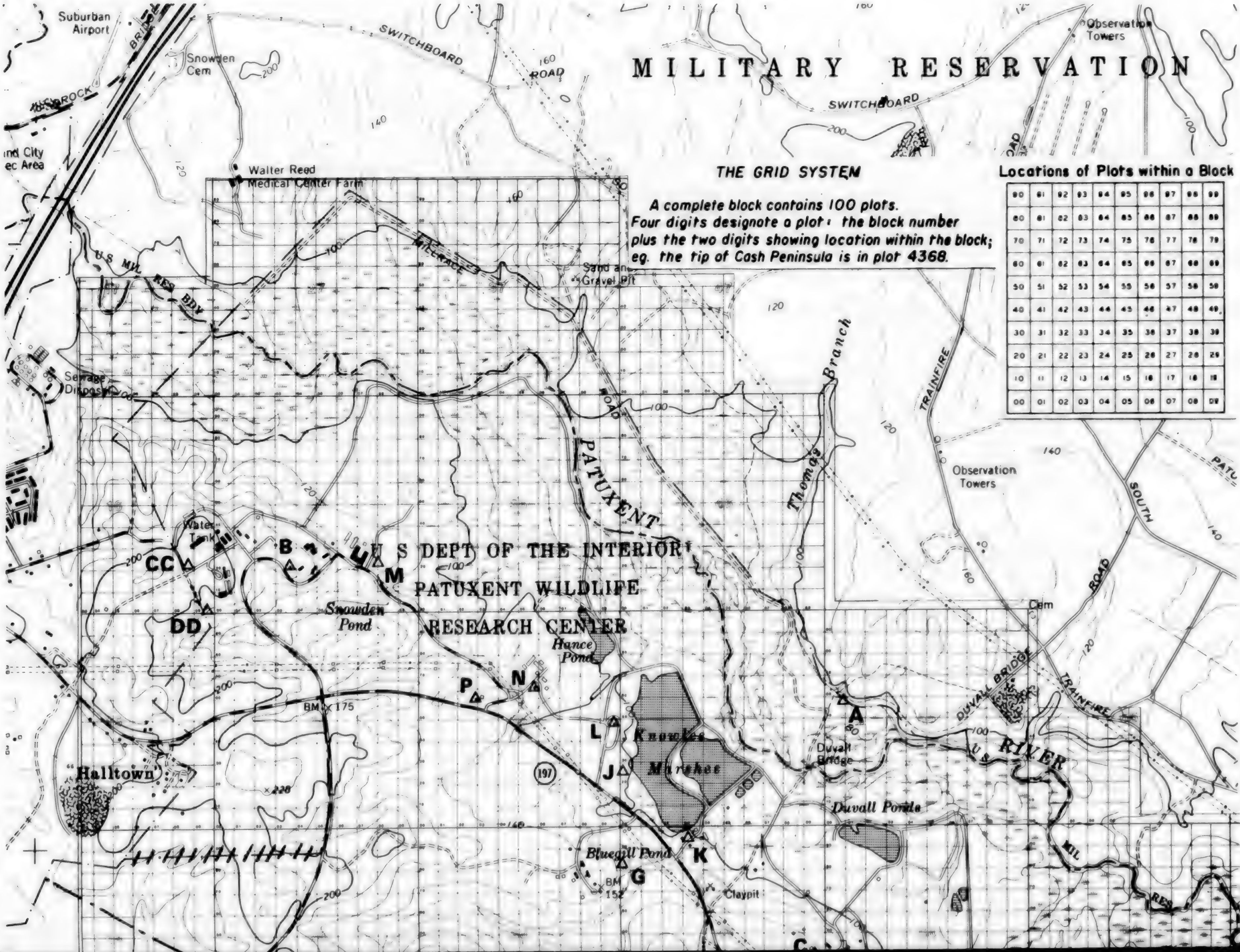

THE GRID SYSTEM

A complete block contains 100 plots. Four digits designate a plot: the block number plus the two digits showing location within the block; eg. the tip of Cash Peninsula is in plot 4368.

Locations of Plots within a Block

90	91	92	93	94	95	96	97	98	99
80	81	82	83	84	85	86	87	88	89
70	71	72	73	74	75	76	77	78	79
60	61	62	63	64	65	66	67	68	69
50	51	52	53	54	55	56	57	58	59
40	41	42	43	44	45	46	47	48	49
30	31	32	33	34	35	36	37	38	39
20	21	22	23	24	25	26	27	28	29
10	11	12	13	14	15	16	17	18	19
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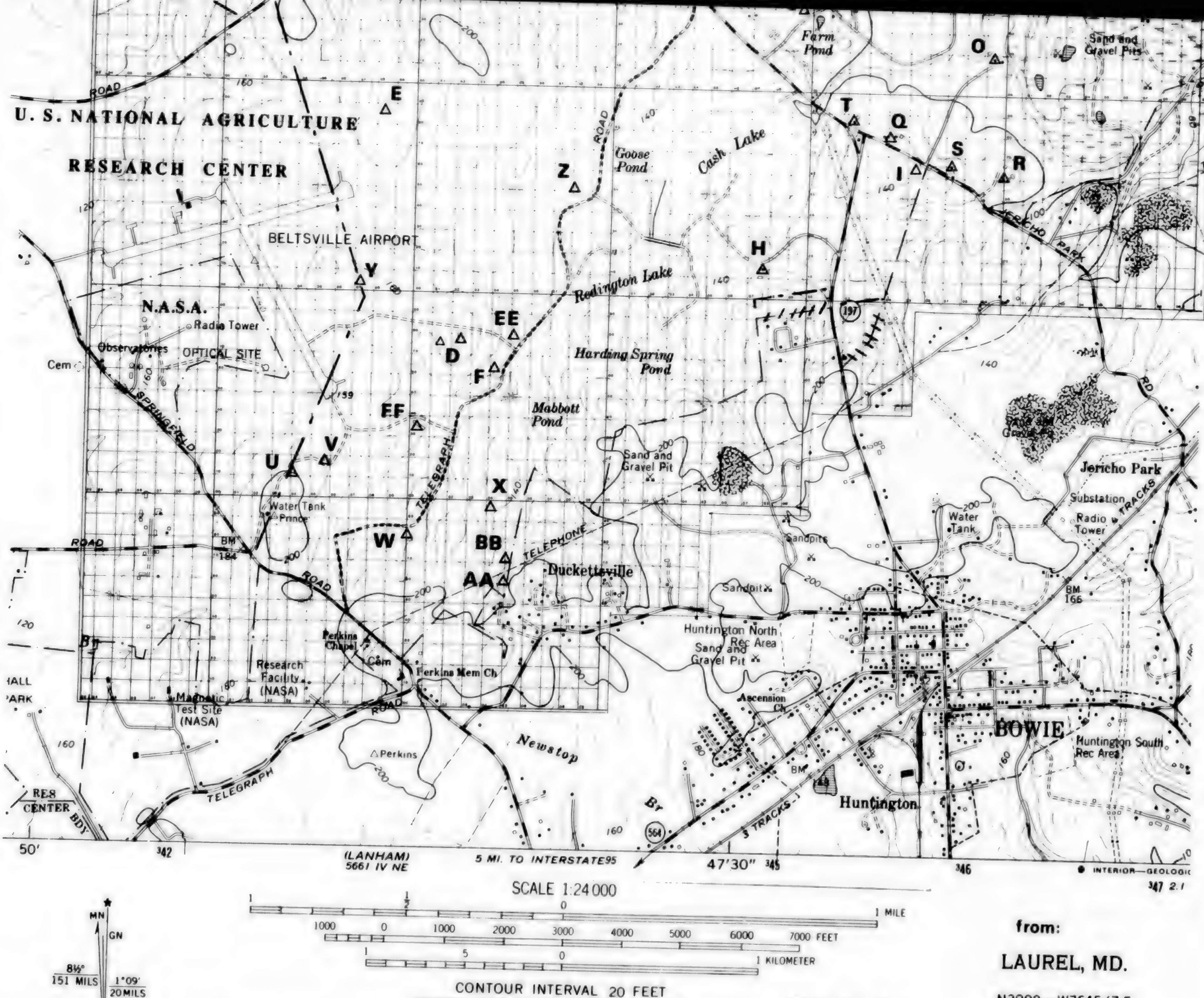

CONTOUR INTERVAL 20 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

UTM GRID AND 1979 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

QUADRANGLE LOCATION

from:

LAUREL, MD.

N3900—W7645/7.5

1965
PHOTOREVISED 1979
AMS 5662 III SE—SERIES V833

FIGURE 13.
Plan of Historic Site Locations – PWRC
(See Table 3 for letter key identification of sites.)

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mile south of Holy Trinity Church. A second and probably later road extended northeast-southwest through the Montpelier Mansion area, crossing the Patuxent at Brock Bridge. (The river crossing itself, however, was probably earlier than the remainder of the road.) This was undoubtedly the main route from Bladensburg and later Washington (and points south) to Baltimore (and points north). The third road extended from the Patuxent Forge area on the Little Patuxent River in Anne Arundel County (now directly southwest of Tipton Airfield in Ft. Meade), across the Big Patuxent at the present location of Duvall Bridge, and south to the Holy Trinity Church area by way of Jericho Park. The 1794 map indicates an unsurveyed connection between the last of these roads and the first, corresponding to the present alignment of Route 197 between Telegraph Road and the Halltown area.

The modern successors to the northwest-southeast route, the first road discussed above, are: Route 197 between Brock Bridge Road in Montpelier Mansion area and Halltown at the western boundary of the PWRC; an abandoned and partially obliterated road, identified variously as Sand Road, Jenkins Farm Road, the Patuxent Road, the Marlboro Road (these last two names are associated with easements recorded in property records for tracts 116 and 118-120), and the road to Queen Ann, which extended from the Halltown area to the Perkins Chapel area at the south end of the PWRC; and Hillmeade Road between the last area and Route 450. Brock Bridge Road and Odell Road are the modern local successors to the second road, the former main route running northeast-southwest. North Telegraph Road, a short segment of Route 197, and Jericho Park Road are the local successors to the third road, which crossed the river at Duvall Bridge.

Periodic construction of new roads during the nineteenth century added to the local network. The turnpike which became U.S. Route 1 west of the PWRC was probably built in the 1810s. South Telegraph Road, as its name implies, is likely to have been constructed about the same time as (and perhaps in connection with) Morse's 1844 telegraph line between Baltimore and Washington along the same alignment. This road (as well as many others) is first shown on the 1861 map. The telegraph line remained in use until World War II. Presently, at least two wooden utility poles associated with the line remain standing alongside South Telegraph Road (in the vicinity of plots 3254 and 3327). Also first clearly shown on the 1861 map was Lemmon's Bridge and the road between this bridge and Jericho Park. Maps of Maryland made c. 1840, however, suggest that Lemmon's Bridge was already in existence then, and that it was a more important crossing than the one at Duvall Bridge, which the maps evidently did not show (Papenfuse and Coale 1982:74). The section of Route 197 between Jericho Park Road and Bowie is, like Bowie itself, a post-Civil War development, and it first appears on the 1878 map. A county road which dates to the very end of the nineteenth century extended through the Snowden Hall area. Morley states that by the mid-1930s this road had been "abandoned" by the county, but that it was the only entrance to Snowden Hall. Much of it is now part of the Service Road in the headquarters area of the PWRC. The road may originally have been a private drive developed at the same time as the Snowden Hall plantation.

Into the 1920s, the only roads in the vicinity which had hard macadam or concrete surfaces were U.S. Route 1 to the west, Maryland Route 3 to the east and Maryland Route 450 to the south. All the other roads were gravel or dirt surfaced. During the late 1920s, and early 1930s, however, Maryland Route 197 "was upgraded from an earthen county road . . . under four separate projects . . . " (Correspondence, in the general property file, from Maryland Department of Transportation to Director, PWRC, dated 5/8/80). Minor realignment of this road separated small sections of tracts no. 97 and 120 from the tracts' major parts. Other roads in the vicinity were paved about the same time. Following the creation of the PWRC, the BARC, and an enlarged Ft. Meade, North and South Telegraph Road and Jenkins Farm Road effectively ceased to be public roads. Neither was ever paved, and Jenkins Farm Road was largely obliterated during the World War II period construction of Beltsville Airport. (A scatter of late nineteenth/early twentieth century artifacts is present in the woods south of the intersection of Telegraph Road with Rte. 197, in plot 4434, an area which would have been nearer the pre-1920 alignment of the latter road. No dwelling is known to have existed in the same area, and the artifacts probably originated as roadside discarded debris.)

During development of the PWRC and BARC in the mid- to late 1930s the largest additions to the local road system were Powder Mill Road, which leads to the PWRC from the southwest, and the Baltimore-Washington Parkway. At the same time, the PWRC and BARC/Forest Service headquarters areas had new entrance drives constructed. Most of the internal roads of the PWRC and BARC, however, are likely to have been based on private drives, essentially wagon tracks which had formerly interconnected roads, houses, barns, fields, and wood lots. In the former Forest Service area, nature has taken its course with the road system since the 1970s, and the roads there have, at best, become trails. Otherwise, the PWRC's internal roads, largely gravel surfaced, are maintained in good condition.

Roads are an important element of any area's physical development, but only rarely are they so significant by themselves that National Register nomination is warrented. More frequently, aside from functional purposes, roads merit preservation because of the contribution they make to the historical authenticity and aesthetic quality of specific historical sites and districts. Presently, as cultural resources, the roads within the PWRC do not require special treatment or preservation. They do not possess independent historical significance, and they do not contribute sufficiently to the authenticity or aesthetics of any particular significant site.

There are, however, at least two resource management issues relating to the PWRC's roads which cannot be decided simply on the basis of current National Register ineligibility. The development of the PWRC itself and the scientific achievements it has been institutionally involved with may in the future warrent its designation as an historic district. Because of this, and in the unlikely event that the PWRC undertakes substantial modification of its internal roads, consideration should be given to insuring overall compatibility between any new designs and the existing pattern. In addition, while Duvall Bridge, an early twentieth century steel truss structure, may not at present be eligible for listing on the National Register, it is likely to be eligible in the future. It is already included (as site PG 64-2) along with the Goodwood/Gladswood site, on the inventory of state historic sites maintained by the Maryland Historical Trust, and has been preserved accordingly. Associated portions of North Telegraph Road should also continue to be preserved together with the bridge.

Snowden/Duvall Mill

One of the oldest sites in the PWRC is that of the Snowden/Duvall Mill, on tract no. 9 northeast of the river. This mill was depicted on Dennis Griffith's 1794 map of Maryland as well as on several nineteenth century maps. It was possibly constructed in the 1730s when Richard Snowden ("The Youngest" or "The Ironmaster," 1690-1763) developed a nearby furnace and forge. The mill was acquired by Dr. Charles Duvall prior to 1831 (as indicated by a map dated that year), possibly in 1816 when Duvall, along with Daniel and Thomas Jennings, patented "Contention" in the vicinity. The mill and other property in Anne Arundel County was inherited by Laura Kerr Griffith upon the death of her father, Charles Duvall, in 1862. Evidently renovated sometime after the Civil War, the mill is likely to have operated until the turn of the century. It was identified as a grist and saw mill on 1861 and 1878 maps.

The most prominent existing features at the site are a small, concrete bridge which carries North Telegraph Road over the mill's headrace, and a formed concrete penstock and turbine housing. The latter feature is approximately 100 feet east-southeast of the former, and both are adjacent to the PWRC's boundary with Fort Meade. There are remnants of a roughly dressed ironstone foundation, about 40 feet southeast of the bridge, which may derive from an earlier mill structure.

In 1936, on the same tract as the mill, were a small frame house on a stone foundation (with an addition on the concrete foundation), a poultry house, and an oil house. The origin of these structures and their relationship to the mill are unclear, since the plat for the property indicates that the "Miller's House Lot" was on an adjacent tract (outside the PWRC). They were demolished when acquired by the PWRC.

The mill and North Telegraph Road were undoubtedly historically interrelated. As noted above, the 1794 map shows a river crossing at or near the present site of Duvall Bridge. It is also likely that at least one landing for water transport was located nearby, as reported by Morley (1949:6).

The features and artifacts at the Snowden/Duvall Mill site are likely to provide a clear archeological reflection of an important local industry, which remained in operation at the site for more than a century. In addition, the site was developed and owned by individuals historically prominent in the region. Consequently, the site is potentially eligible for listing in the National Register of Historic Places.

Snowden Hall

Snowden Hall's dignified appearance and central location within the headquarters area of the PWRC, together with its origin as a Snowden family residence, make it the best known historic resource there. The former plantation overseen from the house was part of "Robin Hood's Forest," the original local patent granted to Richard Snowden, Sr., in 1686, and of "New Birmingham Manor," a consolidation of family holdings patented in 1785. Morley reports that "Snowden Hill," where Snowden Hall now stands, was previously the site of another Snowden residence, built in the early 1700s and destroyed by fire c. 1800. Snowden Hall itself was reportedly built about 1812-1816 (Morley 1949:13).

It is unclear which, if any, of the family resided at Snowden Hall prior to John Snowden (1830-1872), the son of Rezin H. Snowden. John Snowden's son John was born at Snowden Hall and evidently lived there most if not all of his life.

Snowden Hall was the center of a slave-worked plantation before the Civil War. Tenant farming prevailed after the war. The major crop throughout the period was tobacco. Among the outbuildings on the property (tract no. 145) in 1936 were: a tenant house, former slave quarters, a tobacco barn, a horse (?) barn, a carriage house, a shed for cattle and sheep, a poultry house, and an ice storage building. Several of these buildings are shown in Figures 14-16.

A comparison between existing topography in the vicinity and that shown in Figure 16 indicates how extensive the landscape modifications were in this area during its adaptation and development by the PWRC. The elevation of two hilltops -- one directly northwest of Snowden Hall, the other at the present site of the PWRC's garages -- was reduced by 3 to 4 feet, while adjacent sloping areas were filled. The foundations of the Hall itself were rebuilt of concrete, and two wings were added using bricks salvaged from the oldest portion of "Gladswood." All of the outbuildings were demolished.

While Snowden Hall, as Sasser indicates (1987), is probably eligible for listing on the National Register, this eligibility is based on architectural and historical grounds, rather than the likely archeological characteristics of the site. (Snowden Hall is already on the inventory of state historic sites maintained by the Maryland Historical Trust, as site PG 64-1.) The late 1930s ground disturbances at the site probably destroyed much of its archeological integrity, and important historical information would be difficult, if not impossible, to retrieve by means of archeological investigation. Therefore, the archeological attributes of the site should not be viewed as contributing to its National Register eligibility.

Goodwood/Gladswood

Another of the oldest historic sites at the PWRC is that of Goodwood/Gladswood, the former home, and plantation, of Dr. Charles Duvall and his son, William. The earliest house at the site was presumably built by John Moore, who patented "Moore's Industry," where the site is located, in 1718. Moore's 1749 will (a transcription of which is included in the tract no. 99 property file) indicated that he was a carpenter and

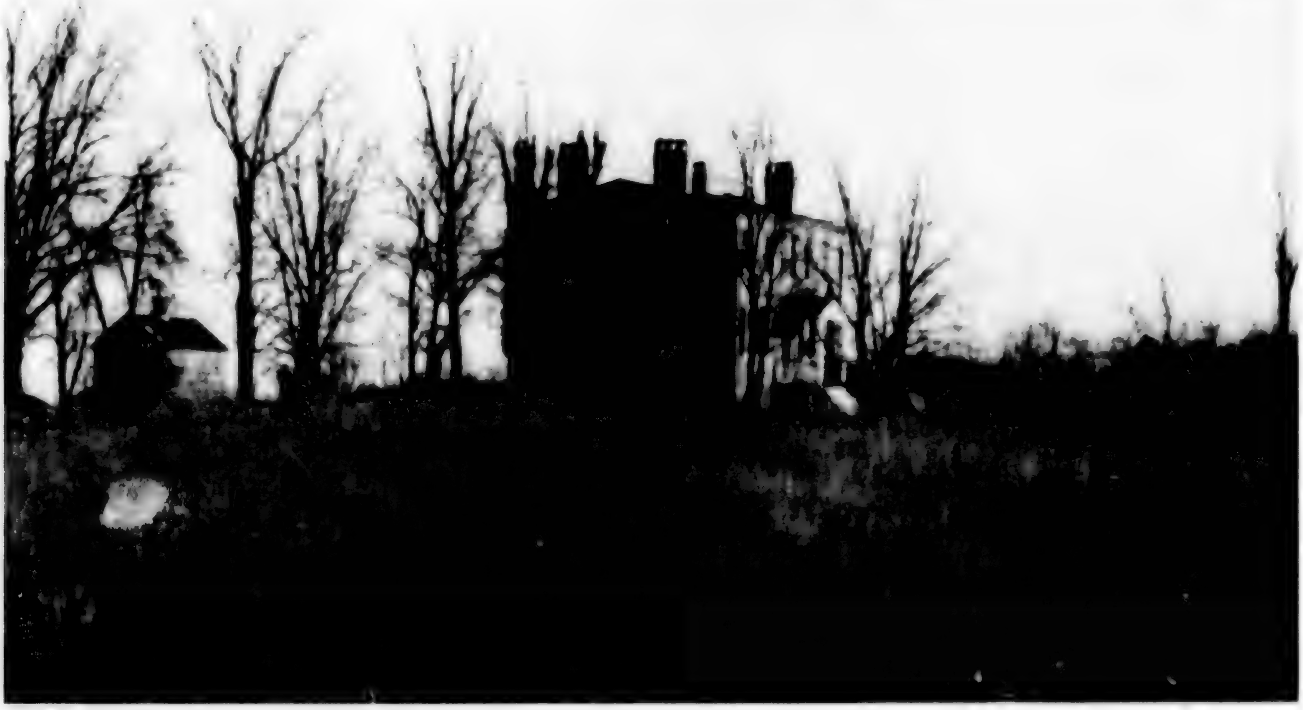

FIGURE 14. Snowden Hall, center, tenant house, left, and former slave quarters (?), right, viewed from the northwest, c. 1936.

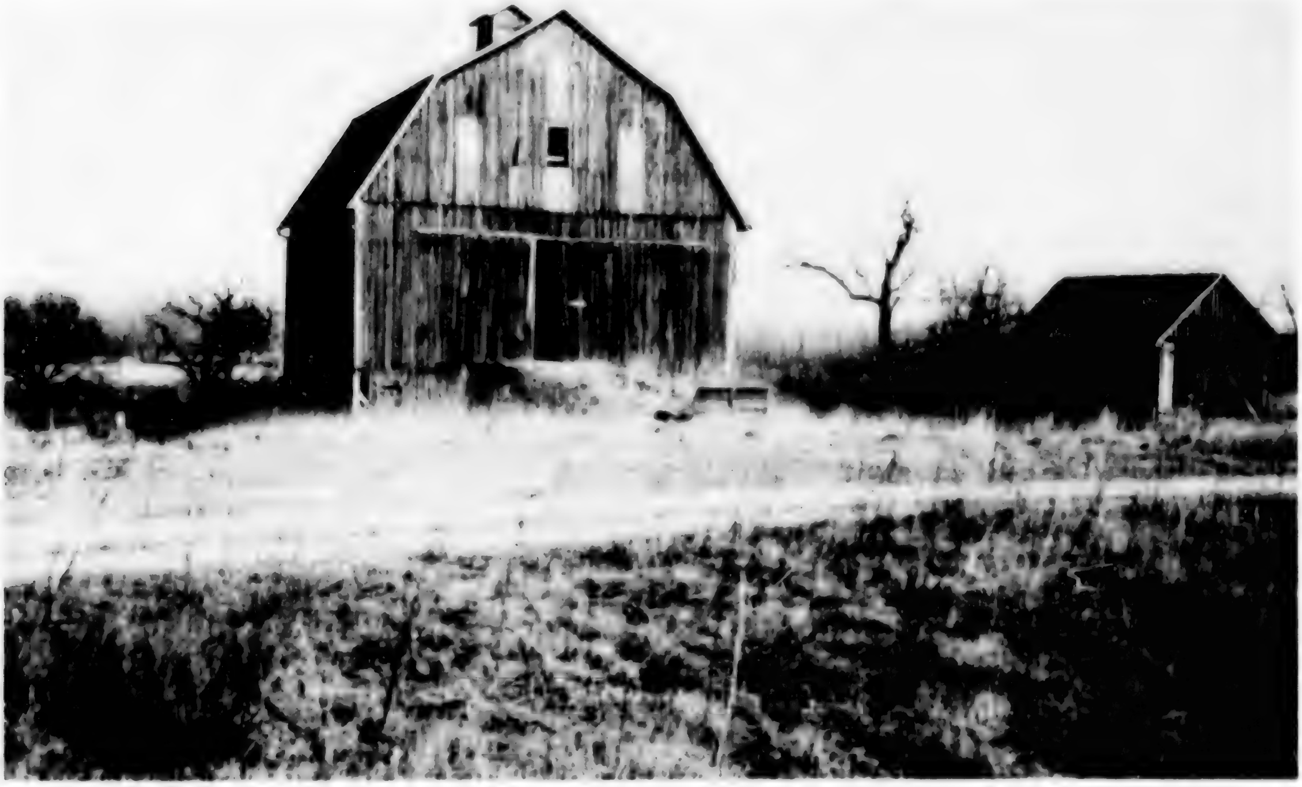

FIGURE 15. Barn and carriage house on the Hopkins tract, Snowden Hall vicinity, viewed from the southwest, c. 1936.

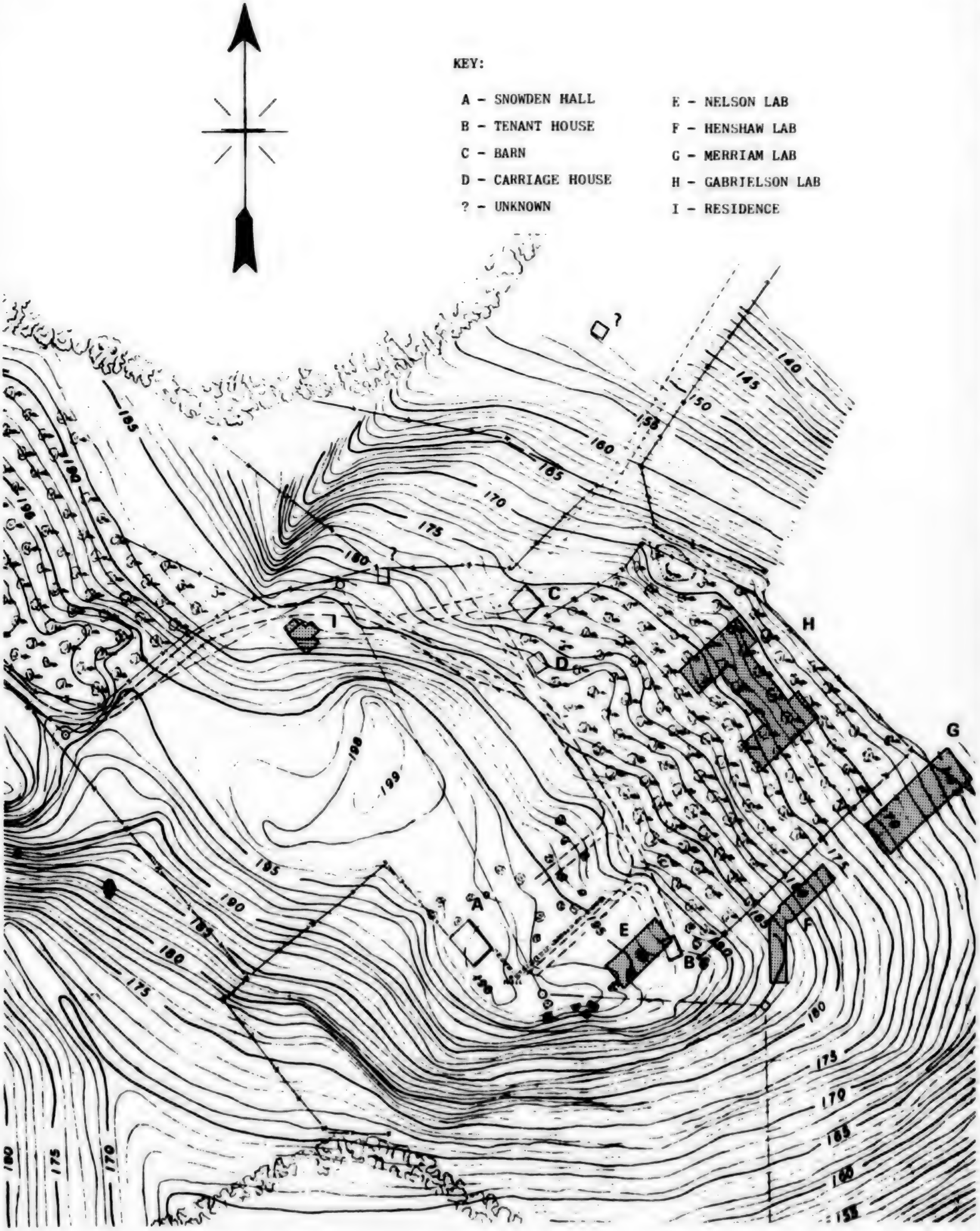

FIGURE 16. Plan of the Snowden Hall Vicinity c. 1936.

(Detail from Fish and Wildlife Service Drawing No. 42 PAT 1. The approximate locations of modern buildings have been added.)

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that he resided at "Moore's Industry." After his death, Moore's wife and children sold much if not all of the property, in separate parcels, to Mareen Carrick (c. 1762) and Joseph Waters (prior to 1769). In 1811, Charles Duvall made separate purchases of "Moore's Industry" derived properties from Obed Carrick and Thomas J. Waters, one of which may have included the Goodwood site. Nonetheless, it may have been several years before Duvall resided at Goodwood. The 1827 map of the area west of the PWRC (Figure 8, above) shows the residence of "Dr. Duval" approximately one mile northwest of Snowden Hall. (The same map identifies "Duval's Store" at the present intersection of Snowden Road with Route 197, and "Z[adock] Duval's" residence along the "Road to Queen Ann" south of Snowden Hall.) In 1850 Charles Duvall added to his already substantial holdings (at least 1200 acres) by purchasing a tract known as "Friendship" from Nathan T. Waters, who had acquired it from Watham Waters, his father, and Philip Snowden. (In the late nineteenth century the latter tract became the Knowles farms, as discussed below.) Newman records that in 1825 Charles Duvall purchased several tracts in Prince George's County (Ijams' Choice, Clarke's Fancy, Miller's Choice, and Richard's Forrest) from Joshua T. Clarke, and that in 1855 J. T. Clarke, Jr., repurchased the same land except for Richard's Forrest. The property (ambiguously, in Newman, either the land sold or kept by Duvall in 1855) was described as that "on which the said Dr. Charles Duvall resides" (1952:503-504).

By 1861, both Charles Duvall and William had homes at Goodwood. After Charles died in 1862, William inherited all of his father's property in Prince Georges County, and reportedly renamed the house "Gladswood" after his wife's Scottish home (Morley 1949:15-16; Maryland Historical Trust 1978).

In 1906, five years after William's death, his widow Jane Kerr Duvall sold the property to Laura Kerr Matthews. By 1936 the sale of several parcels had reduced the overall size of the tract containing Gladswood, which then was owned by Fred Kluckhuhn and farmed by a resident tenant.

In 1936, the house (Figures 17 and 18) consisted of an original section, of brick, together with three frame additions. Among the other improvements were two new tobacco barns, a tenant house, a stable, a granary, and poultry and other sheds. Except for the tobacco barns, these buildings were all raised upon acquisition of the tract by the PWRC. Bricks from the original section of Gladswood were used for the construction of additions to Snowden Hall, as indicated above.

Early twentieth century maps indicate that one of the structures in the Gladswood vicinity was located near the intersection of the Gladswood drive (now the Rare and Endangered Species area entrance) with Route 197 (plot 4418?). This building may also be among those indicated on the 1878 map, but it does not appear on the 1936 map. Its function is unknown.

The site of Gladswood is now occupied, at least partially, by a modern PWRC residence (Building 80, built in 1952) and a small, abandoned, cinder block structure. The deliberate nature of Gladswood's 1936/1937 demolition ("Usable materials were salvaged and a general clean-up of the sites completed" Morley 1949:31), together with reuse of the site, are likely to have severely disrupted archeological resources there. As a consequence, the site is not likely to be eligible for listing on the National Register. The site of the ancillary building near Route 197 may be less disturbed than the rest of Gladswood, but it is not likely, on its own, to be eligible for listing on the National Register.

The Goodwood/Gladswood site is listed, together with the Duvall Bridge, as site PG 64-2, on the inventory of state historic sites maintained by the Maryland Historical Trust. One evident error in the inventory's description of the site, however, could mislead PWRC managers. So far as I can determine, a "large family burial plot" was not present at the site, and was consequently not moved to Holy Trinity Church following the government's acquisition of the site. (The source for this evidently erroneous suggestion is Newman 1952:522. Newman also suggests, only somewhat more plansibly, that the remains of several former slaves are still buried in "hallowed ground" at Gladswood.) The parish register

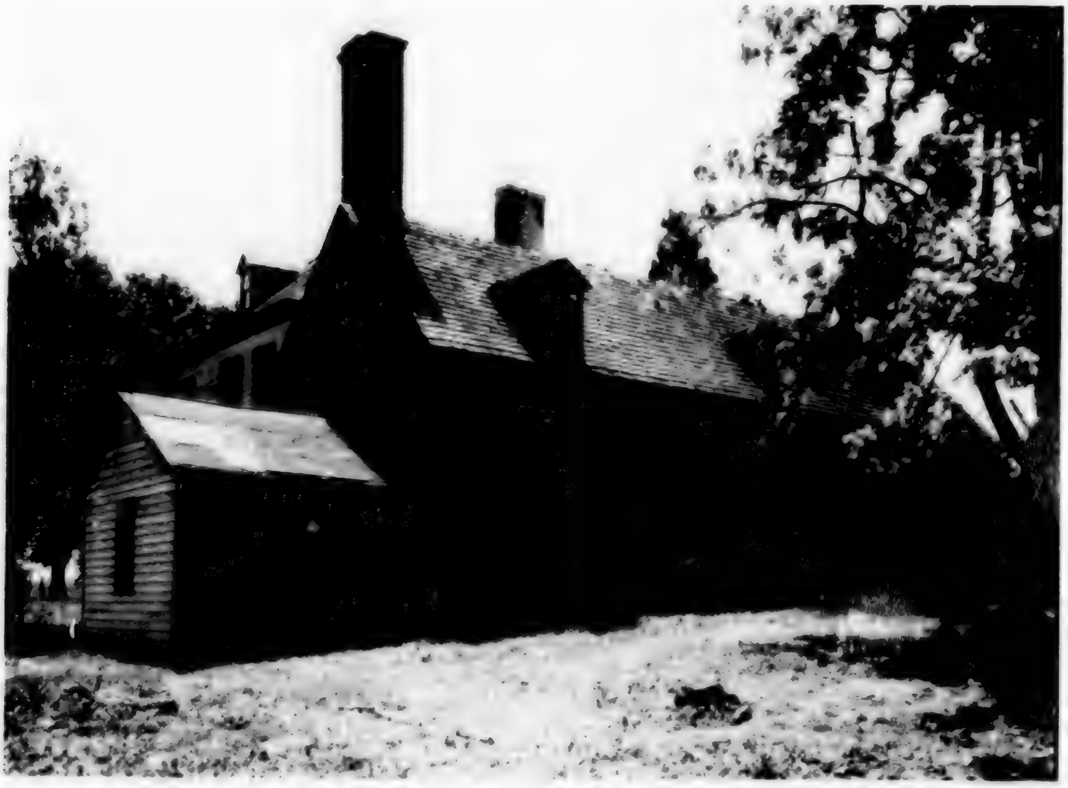

FIGURE 17. Gladswood viewed from the northeast, 1936 (HABS/MD,17-BOWI.V,1-4).

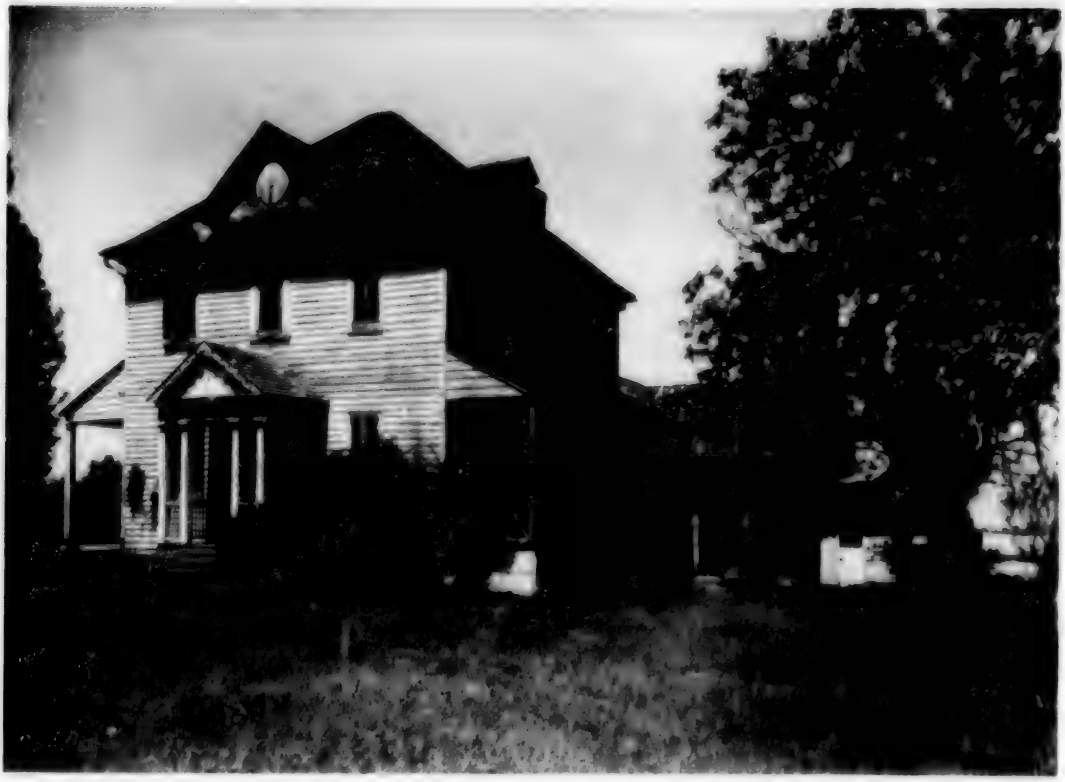

FIGURE 18. Gladswood viewed from the south, 1936 (HABS/MD,17-BOWI.V,1-1).

appears to indicate that William Duvall and his wife were buried at Holy Trinity Church when they died, in 1901 and 1906. The graves there of Charles Duvall and his wife, as well as of several other Duvalls, are probably also primary interments.

Mitchell/Hoffman Site

The Hoffman tract was the largest acquired by the government in the 1930s now entirely within the PWRC (some of it was originally part of the Forest Service section of the BARC, and was transferred to the PWRC in 1976 and 1980). It was, in addition, the site of one of the oldest continuously occupied farmsteads in the area, sharing this distinction with Snowden Hall, Gladswood, the Hall/Coffin site, and the Briggs/Harding site. Development of the site may have begun in the eighteenth century, when John Mitchell patented property in the area (Table 2). The residence was situated approximately 900 feet west of South Telegraph Road, which divided two smaller, western sections of the tract from a larger eastern section.

The site was first mapped in 1861, when Henry Mitchell was identified as the owner. At this time the property was probably a slave-worked plantation. The site was still identified as belonging to Mitchell in 1878, although he had sold his property to Mary E. Haines on September 10, 1877, with the following reservation:

> There is excepted from this conveyance a lot about fifty feet square . . . known as the Family Burial Ground and on the land hereby conveyed. [Land Records of Prince George's Co., Liber H.B. No. 12, Folio 580; quoted in property file].

A 1936 plat for the tract indicated one cemetary for whites and another for blacks. On July 26, 1905, John Philip Hoffman bought the property from Matilda P. West, a widow. Hoffman resided at the site until the 1930s.

In the c. 1935 property appraisal, the improvements consisted of two (?) frame dwellings (the dimensions of three structures are given, but at least one of these is probably an addition or porch), a frame "bungalow," a barn, a granary, and a poultry house. The barn and the bungalow were reportedly in fair condition, the other buildings in poor condition. The plat for the tract indicates the general locations of the buildings as well as the cemetaries (Figure 19).

During a visit I made to the site in the fall of 1986, I observed two foundations (one of poured concrete enclosing a basement area, the other of stone) as well as artifacts (ceramic, fragments, brick fragments, a vehicle chassis, etc.). No features indicative of the cemetery were observed. During Forest Service administration of the property Hoffman Hill Road was established along the north edge of the site area, and a loop drive connected to that road circled the site. Because of heavy use (associated with construction of Beltsville Airport?) and erosion, the road and drive are deeply entrenched.

Two additional sites are related to the Mitchell/Hoffman site. Mitchell II is the designation I have given to a residence (?) identified as belonging to Mitchell on the 1861 and 1878 maps. Sam Droege (personal communication) guided me to a stone foundation located at this site in the autumn of 1986. A more recent building (Hoffman II) was shown near South Telegraph Road east of the main site on early twentieth century maps. No evidence of this building was observed during a walk-through of the area in the autumn of 1986.

Both the Mitchell/Hoffman site and the Mitchell II site are potentially eligible for National Register listing because the relatively undisturbed archeological data at these sites could contribute to an understanding of the economic and social transformations which occurred in the region between the mid-nineteenth and early twentieth century. The Hoffman II site is not likely to be eligible, due to its recency, but data there could nonetheless supplement an investigation of the Mitchell/Hoffman site.

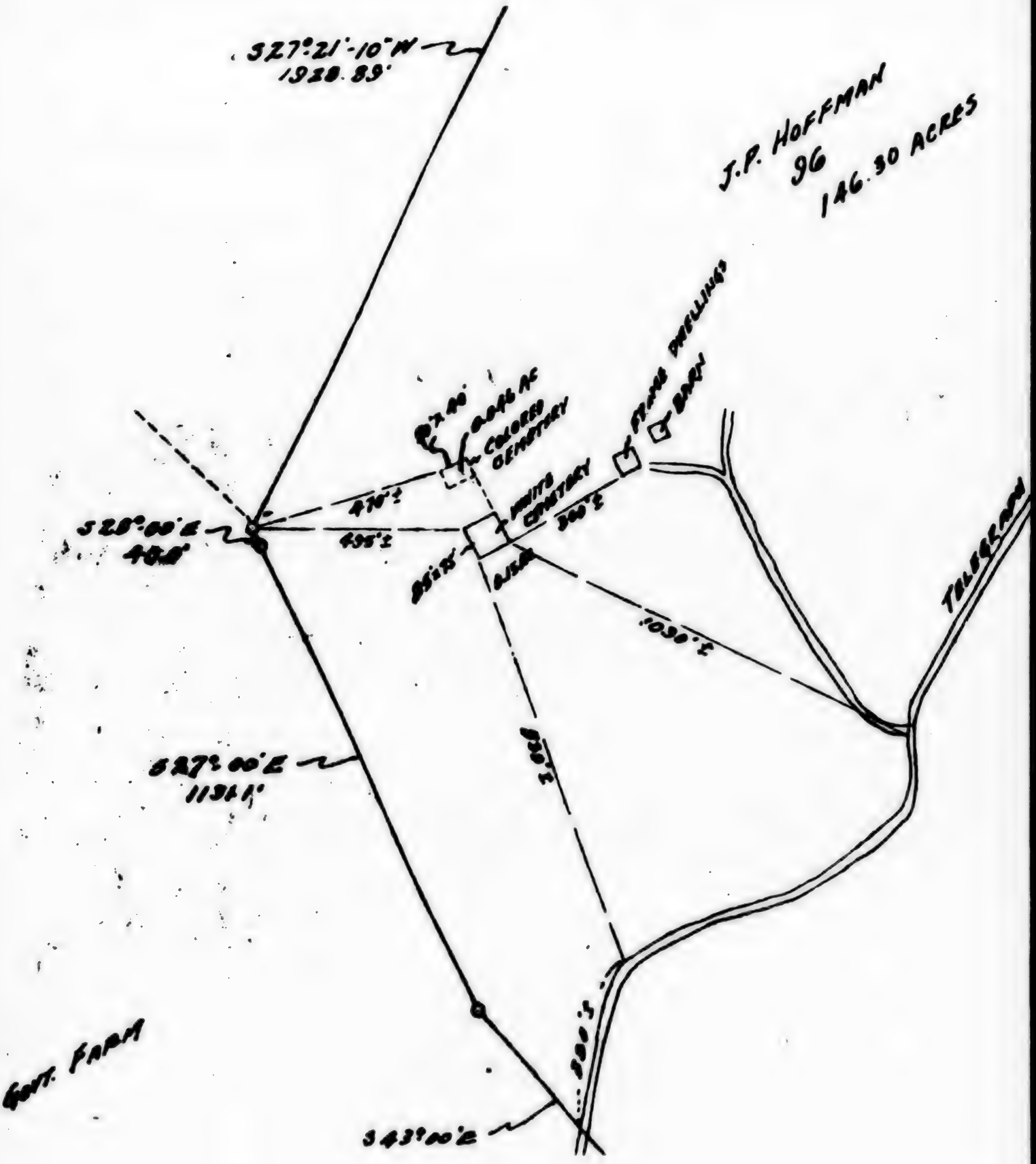

FIGURE 19. Detail from the Hoffman Tract Plat (Tract No. 96) – c. 1935.

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Hall/Coffin Site

Another of the pre-1861 residences, presumably the center of a small plantation, is reflected by the Hall/Coffin site. This site also remained in use into the 1930s. J. S. Hall is identified as the owner or resident on the 1861 map. Charles Coffin had acquired the property by 1878. The tract (no. 97) on which the site is located is comprised of parcels acquired by Robert Sparks after the turn of the century from the Coffin estate and the Stanley estate. (In 1891, Margaret Snowden Stanley acquired a substantial portion of John Snowden's estate.)

The residence was occupied by a tenant farmer when the Resettlement Administration bought the tract in the 1930s. The improvements on the tract then were a two-story frame house, a barn, and miscellaneous outbuildings. The buildings were undoubtedly demolished soon after the tract's acquisition. The headquarters of the Beltsville Experimental Forest was developed in an area immediately south of the site shortly thereafter.

The exact location and existing characteristics of the site are unknown. It is probably located in the vicinity of plot 4470. When I visited this area in December, 1986, I saw a heavily overgrown, fenced yard in the southwestern section of the plot, and remnants of a privy at the northwest corner of the yard. However, the yard and privy probably derive more directly from modern gardening (by occupants of Forest Service residences in the headquarters area to the south) than from the Hall/Coffin site itself. A former Forest Service Road (possibly derived from the Hall/Coffin site entrance drive) in the immediate vicinity was labeled "Garden Loop" on the 1948 (revised 1950) map of the Experimental Forest.

There is not, at present, sufficient data to draw any reliable conclusion regarding National Register eligibility of the Hall/Coffin site. Its pre-1861 origin, and the possibility that ground disturbances were minimal when the structures there were demolished, make it appropriate nonetheless to treat the site as if it is potentially eligible. The area of the site would need more intensive archeological investigation prior to any development.

Briggs/Harding Site

The Briggs/Harding site derives from another of the pre-1861 residences of the PWRC area. The residence was identified on the 1861 map as belonging to "Nicholson." By 1878 the property belonged to Benjamin T. Briggs (map) or Biggs (deed abstracts in tract no. 123 property file), but in 1882 it was conveyed to Johanna Reum. Elizabeth and William Harding acquired the property from the Reum heirs in 1911-1912.

In 1936, when the tract became part of the PWRC, the improvements consisted of a two-story frame house, owner-occupied, in good condition, and a small barn in poor condition. "The house was repaired and remodeled by WPA" in 1939-1940, and was made a staff residence (Quarters No. 11), occupied initially by Alvis K. Melton. "A combination building consisting of a poultry house, stables and garage was also built." (Morley 1949: 55, 56.) In more recent years the house (prior to its demolition a few years ago) and tract were known as the Christian Farm (Perry, personal communication, 1987).

Briggs II is my designation for an associated structural site which only appears on the 1878 map. I have no evidence for the use of this structure, but its roadside location suggests that it may have served as a store.

There is not sufficient evidence for a firm assessment of the National Register eligibility of either the Briggs/Harding or the Briggs II site. I doubt, however, that they would prove eligible, should it be necessary to gather additional data, because the first site is likely to have been seriously disrupted during its mid-twentieth century re-use (and destruction) while the second is likely to have left only an ephemeral archeological reflection.

The Knowles Sites

In 1871, William Duvall sold about 176 acres of the Gladswood estate to James N. Knowles. The parcel, to the west of North Telegraph Road, had been part of "Friendship," patented in 1753 and purchased from Nathan J. Waters in 1850 by Charles Duvall and wife. In 1874, James Knowles conveyed approximately 76 acres adjacent to North Telegraph Road to Sarah James Knowles. The latter parcel is presently tract no. 112, while the parcel retained by James Knowles is tract no. 104.

The 1878 map shows two residences, one in the area of tract no. 104 belonging to James Knowles, and one on tract no. 112 belonging to John Knowles. It was not until 1900, however, that John W. Knowles acquired a slightly enlarged tract no. 112 from Sarah J. Manville (then a widow). The location of the James N. Knowles residence on the 1878 map was approximately 750 feet southeast of the house location shown on later maps. Mapping error could account for this, or it may reflect actual relocation of the house site around the turn of the century. Because of the latter possibility, two sites have been indicated for the tract.

The improvements on tract no. 104 in the mid-1936, when it was purchased for the PWRC from James B. Knowles, consisted of a concrete block bungalow in good condition, a frame bungalow in poor condition, a hay barn, a stable and a corn crib. On tract no. 112, purchased from John W. Knowles, the improvements were a two-story frame house in fair condition, a barn, a poultry house, and a shed. There are photographs of the John W. Knowles residence and outbuildings in Morley (1949: unnumbered pages 13 and 16 of "Miscellaneous Photographs" section).

In 1944-1945, the structures at the J. W. Knowles site were demolished to make way for two new PWRC residences and an associated outbuilding. Extensive excavation and filling accompanied construction of these buildings and the creation of Bluegill Pond in the immediate vicinity (Morley 1949:73). The concrete block bungalow on the J. B. Knowles tract was made into a PWRC residence (1949:40), while the older buildings were presumably demolished.

None of the Knowles sites are likely to be eligible for the National Register. They are all relatively modern, and are not associated with historically prominent figures. The J. W. Knowles site was almost certainly destroyed during the 1940s; the condition of archeological materials and contexts at the J. N. and J. B. Knowles sites is unknown. Other residential sites within the PWRC, however, which in age overlap the Knowles sites, are probably less disturbed. At least potentially, as noted above, a few of these other sites are better candidates for nomination to the National Register.

One aspect of the history of the Knowles tracts which I have not pursued, but which may be worth noting, is the increase in size of the tracts from roughly 176 acres in 1871 to more than 213 acres in 1936. The increase (as indicated in the deed for the J. W. Knowles tract dated May 28, 1936) is partly due to the addition, after 1874, of land along the southern boundary of tract no. 112. In the deed which conveyed the major part of tract no. 112 to Sarah J. Knowles in 1874, the property was said to be bounded "on the south by the land of Mr. Denson and lately sold to the Murkirk Iron Company." The extent of the Murkirk Iron Company's holdings and the nature of their use are not known.

The Hance Sites

When the Hance Farm was acquired in 1936 for inclusion in the PWRC, it had one of the highest per acre valuations of all the tracts purchased at that time. This was presumably because the Hance tract (no. 105), unlike other tracts, consisted almost entirely of arable land. Probably for the same reason, the Hance Farm became the major agricultural component of the PWRC up until cultivation of fields there ceased c. 1970.

The more recent Hance site (Hance II) is well documented. An existing residence there, which was built in the late 1930s where an earlier farmhouse had stood, remains in use, along with various barns, equipment garages, and other outbuildings. Frank Hance, the tract's former owner, was himself employed by the PWRC as a laborer until 1942, and until then he continued to reside there. Morley documented the PWRC's early management of the tract and site (1941:29-30, 47-48, and unnumbered pages 10-12 of "Miscellaneous Photographs" section).

The Hance family's acquisition of tract no. 105 has not been fully documented. At least some of the tract was purchased in 1915 from Margaret S. Stanley, who had acquired a substantial part of the first John Snowden's estate in 1891. The Hance II site first appears on maps around the turn of the century.

Hance I, as I have designated what may have been an earlier Hance residence, possibly that of Frank Hance's father, was shown on the 1878 map in a different location than the later site. The location of the earlier site was about 1,300 feet east of Snowden Hall. But neither Hance I nor Snowden Hall was accurately located on the 1878 map, and a simple, though surprisingly large, mapping error may account for the appearance of two sequential sites. In 1936-1940 there was a small loop drive connected with the Service Road at approximately the same (estimated) location as the 1878 Hance site. Complicating matters further, there was also a small gravel pit in the same area.

Whatever the actual status of the Hance I site, the Hance occupying the site in 1878 was very likely a tenant farmer for John Snowden. The Hances' subsequent acquisition of tract no. 105 is very likely a reflection of their economic advancement.

Neither of the Hance sites is likely, in any case, to be eligible for listing on the National Register of Historic Places. Both sites had short and fairly modern periods of use as privately owned farmsteads, and both areas have experienced substantial mid-twentieth century disruption. Further, the sites are not directly associated with historically prominent individuals or families. Finally, artifacts and features which may be present at these sites are likely to be similar to those at less disturbed sites in the vicinity which were occupied for a longer period of time.

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Other Sites

The remaining sites, with some exceptions, are concentrated in the southern and eastern parts of the PWRC, in areas which came into the PWRC only during the past twenty years. They are mostly of very late nineteenth or early twentieth century origin. Also noted in this section are a few abandoned PWRC (and BARC) facilities. As explained at the conclusion of this section, none of the remaining sites are likely, at present, to be eligible for nomination to the National Register. One might be eligible in the foreseeable future, but not because of its archeological characteristics.

The one remaining resource which might in the future be eligible for the National Register, along with other PWRC facilities, is the Log House on the Holtz tract (no. 114). The building was a "residence of recent construction and in good condition" in 1936. "It was occupied by the Refuge Superintendent on May 15 and the development program for the Patuxent was started the next month." (Morley 1949:7). It is due exclusively to this structure's role as the initial PWRC headquarters that it might someday have National Register eligibility. A significant archeological reflection of this role, however, is most unlikely to exist.

Morley reported that in 1939/1940:

> The log house, vacated by the Superintendent when the headquarters was completed, underwent extensive repairs. Rats had tunneled under the footings of the unexcavated portion of the house and for several years had run riot in the residence. The construction of a full basement eliminated this condition and provided space for installation of an adequate heating system. (1949:56)

The building was subsequently a residence, but in recent years has been used to store records.

Otherwise, the most notable of the remaining sites is that of the Duvall/Schafer farm (non-extant), on tract no. 44 toward the east end of the PWRC. A structure which probably served as a tenant's

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residence was built at the site prior to 1878. It appears on the 1878 Hopkins map as a Duvall property. A newer residence and additional outbuildings were constructed following the tract's purchase by the Schafers (initially Sarah F. Schafer) around the turn of the century. The site was the home of the Rev. William A. Schafer in more recent years, but following his death the buildings were demolished (burnt and bulldozed into a ravine). This demolition occurred about five years ago.

In the same area as the Duvall/Schafer farm are four other sites, two located on tracts also formerly owned by Schafers. On one of Millard N. Schafer's tracts (45a) is a cluster of farm buildings (residence, barn, other outbuildings) probably constructed in the 1920s. These buildings, now abandoned, are illustrated and briefly described in Sasser's report (1987, Bldgs. 147-149, 525, and 527). On tract no. 48, formerly jointly owned by Lillie May, Milton Raymond, and Melvin Andrew Schafer, were an "8-room frame dwelling (no water, no electricity), one tobacco building 30 x 64 and some outbuildings" (quoted from an abstract of a 6/11/63 inventory of real estate, in the property file for the tract). These buildings first appear on a 1946 map, but were probably constructed during the 1930s. Another group of buildings was formerly located on tract no. 50 (and apparently on an adjacent section of tract no. 43). The earliest of these buildings appears on the 1907 map and was presumably built around the turn of the century. Tract 50 was formerly owned by Claude McMillian, and tract 43 by Earl Harder. A document in the property file for tract 43 dating to 1945 indicates the existence of a 20-year old house and outbuildings. On tract no. 47, formerly owned by Herman Mitchell, were buildings dating to the 1920s (first mapped in 1936).

One of the oldest remaining sites at the south end of the PWRC is that of a residence (?) on the tract no. 18 (the J. R. Hayden tract) which first appears on the 1903 map. This site has been designated Tract 18-1. Structures there were probably demolished in the mid- to late 1930s. Nearby is a site designated Tract 18-II, the location since at least 1940 of BARC sheds. Other post-1878, pre-1903 dwelling sites (?) in the same area are on tract 4 (gone before 1936) and tract 100 (gone by 1940). Two other dwelling (?) sites were located on tract no. 146 in 1940. One of these is also shown on the 1961 plat of the tract. This tract was acquired from the Potomac Electric Power Company, but the 1936 plat of tract 100 immediately to the west indicates that tract 146 was then "Woods Property." The tract 146 sites, and possibly the tract 4 and 100 sites as well, were presumably associated with the community of Duckettsville.

A walk-through I made in the fall of 1986 of the general area of another 1903 site, apparently located on tract 125 in the former Forest Service section of the PWRC, disclosed the presence of brick fragments, building stone, and charcoal stained soil in a grove of walnut trees along a modern road trace (the north fork of Hoffman Hill Road). Partly because the boundary of the PWRC in this wooded area has not been surveyed or monumented, I was unable to determine the site's exact location or whether it fell within the PWRC. I had the impression that the site I visited was farther southeast (400-500 ft.) than the location of the structure shown on the 1903 map (which is probably outside the PWRC), and that the brick fragment were from handmade, rather than machine-made, bricks. However, no other corresponding site was found. The site's origins are, obviously, unclear, and it may have existed for many years before being mapped. Although the site is unlikely to be eligible for the National Register, historical or archeological clarification of its origins and use would be worthwhile.

The Barton or Wells tract, no. 131, was also the site of a structure mapped in 1903, and still existing in 1940. A well and the collapsed roof of a small building were observed in a visit to this area in the fall of 1986. Passing mention of the Barton tract and its "inholding" status is made in Morley (1949:9). The site was presumably abandoned by about 1950, if not before.

The final sites which need to be noted here are those of a few abandoned PWRC facilities, and of a BARC warehouse in the former Forest Service section of the PWRC. Remnants of a transportable sawmill -- a rusty cluster of gears and parts of a rack -- occupy one such site, in a grove of pines southwest of Bldg. 106. The mill, borrowed from the BARC and powered by an old tractor, was used during W.W. II to convert logs from the Beltville airport area into lumber for new construction and repairs at the PWRC (Morley 1949:66-67).

A movable steel tipple, employed along with trucks and bulldozers for road construction during W.W. II (Morley 1949:67), was evidently loaned or given to the BARC following the war. The site it presently occupies is in the former Forest Service section of the PWRC, near the intersection of Hoffman Hill Road (abandoned) with South Telegraph Road.

A picnic ground for the PWRC was developed in 1939 and probably used into the 1950s. Its site is along the western boundary of the PWRC, southwest of the headquarters area. The facilities, built as a WPA project, consisted of "a spring reservoir, tables to seat 200 people, a barbecue pit, and a shelter house with fireplace," as well as outhouse-type rest rooms (Morely 1949:50, and unnumbered page 9 of "Miscellaneous Photographs," section).

The site of a BARC warehouse is shown on a 1948 map of the Beltsville Experimental Forest and subsequent U.S.G.S. maps. The ruins of a very large frame structure and an extensive area of decaying concrete pavement were observed during a visit to the site made in the fall of 1986.

For a variety of reasons none of the sites discussed in this subsection are now eligible for listing on the National Register of Historic Places. Most of them are residences and small farms typical of the region's recent past, but not unique or especially promising for archeological investigation. None of them are associated with historically prominent individuals or families. The specialized and tangential role of the abandoned PWRC facilities makes them also unlikely subjects for either rewarding archeological investigation or nomination to the Register. As noted above, the Log House on tract no. 114 which served as the initial headquarters for the PWRC could, in the future, be eligible (together with other PWRC structures) for nomination to the Register. Whatever archeological materials exist at this site, however, are most unlikely to contributed to its potential future eligibility.

SUMMARY AND CONCLUSIONS

Site Characteristics

The prehistoric sites at the PWRC reflect several thousand years of human occupation. Most of the artifacts are of Late Archaic origin (4,000 B.C.-1,000 B.C.), but the entire span from the Early Archaic (c. 7,000 B.C.) through the Late Woodland (A.D. 1000-A.D. 1600) is represented. Subsistence is presumed to have been the paramount factor structuring regional settlement patterns throughout prehistory, and in this regard locally the productivity of the Big Patuxent River and its marshy floodplain undoubtedly accounts for the sites on terraces at the margin of the floodplain.

The sites, which have yielded a variety of functional types of artifacts reflecting diverse activities, probably derive for the most part from overlapping, seasonally established base camps of small, interrelated human groups. Special purpose work camps and transition camps are also likely to have contributed artifacts to the terrace sites, and to have resulted in other, as yet unidentified sites in floodplain and upland areas of the PWRC. So far as is known, the terrace sites are shallow, with artifacts confined almost entirely to the plowzone, the top eight to ten inches of soil. Under some circumstances, however, particularly in the floodplain, soil deposition probably resulted in buried and stratified sites. During the Middle and Late Woodland periods pits were often dug at extended occupation sites (for storage and for burials), resulting in features which would be less disrupted by plowing. There is an unconfirmed report which suggests that both a deeply buried, and very early, archeological component, and a significant Late Woodland site, are present in the vicinity of the Rev. Schafer's farm on tract no. 44.

The major prehistoric sites known to exist on terraces at the PWRC are potentially eligible for listing on the National Register because of the value of the data they contain for interpretation of prehistoric lifeways. There may be equally or more significant sites in other terrace areas which have not been subject to ground disturbances (and to opportunistic collection of artifacts) during the past fifty years. Although information concerning possible upland and floodplain sites would contribute to an understanding of prehistoric settlement patterns, such sites are generally not likely to be National Register eligible. A floodplain site which unexpectedly contained an abundance of artifacts in stratified contexts would, of course, be an exception.

The historic sites at the PWRC represent a more limited span of time than the prehistoric, but they are, from the earliest to the latest, associated with a more complex, wide-ranging, and dynamic cultural system. Most of the sites derive from plantations or farmsteads -- clusters of dwellings and agricultural buildings at the center of enterprises as concerned with marketing products (especially tobacco) as with subsistence. A mill (or, more precisely, successive mills at one "seat") is also represented among the historic sites.

The Snowden/Duvall Mill and Goodwood/Gladswood, developed in the mid-1700s, are evidently the earliest historical sites. There may also have been, as is reputed, an early to mid-eighteenth century residence in the vicinity of Snowden Hall, which itself dates to the early nineteenth century. A few other sites are also likely to have been developed in the late eighteenth or early nineteenth century, specifically Michell/Hoffman, Mitchell II, Hall/Coffin, and Briggs/Harding. The majority of the historic sites, however, post-date the Civil War, and several apparently did not exist before the turn of the century.

All of the historic sites would have features and artifacts deriving from former structures and past activities. At sites where modern ground disturbances have been minimal, the specific characteristics of archeological materials would be a significant basis for delineating the social and economic status of households, the spatial organization of structures and activities, and the trends through time as individuals and families responded to historic events within the region at large. In a real way, the historic sites at the PWRC are part of the legacy left to us by the people who lived and worked in the vicinity during its nearly 300 year of history.

The archeological significance of particular sites, and their potential eligibility on that basis for nomination to the National Register of Historic Places, are of course dependent on a variety of factors. The significance of two of the best known sites -- Snowden Hall and Goodwood/Gladswood -- is substantially diminished by twentieth century ground disturbances and site reuse. On the merits of their archeology, these sites are not likely to be eligible for nominations to the register. Several other sites are relatively insignificant both historically and archeologically, and are presumed to be ineligible for nomination to the register, because of their modernity, their lack of association with renown individuals, twentieth century ground disturbances, or some combination of these reasons.

The possible archeological significance of three sites, however, is sufficient for them to be considered potentially eligible for nomination to the register. These sites are: Snowden/Duvall Mill, Mitchell/Hoffman, and Mitchell II. There is insufficient data to suggest the potential eligibility or ineligibility of three other sites: Hall/Coffin, Briggs/Harding, and Briggs II. In all of these cases, additional archeological and historical research would be needed to support National Register nominations, or to conclude that, in fact, the sites are not eligible.

Reliability of Data

The data I have used to prepare this overview and assessment are skewed in several recognizable ways. As noted above, the data concerning prehistoric sites consist almost entirely of artifacts collected by PWRC staff from plowed fields there, and of the gross provenience recorded for those artifacts. Consequently, I have not empirically determined the presence and density of artifacts in areas which have not been cultivated or otherwise disturbed. The topographic extremes of the PWRC -- the floodplain and upland knolls and saddles -- are the areas virtually unrepresented in the existing collection. I have, nonetheless, suggested that major sites are not likely to exist in these areas, and that the minor sites which probably do exist there may be difficult to locate because of low artifact densities, erosion, and alluviation. Unsupported by systematically collected evidence, however, these suggestions are not a reliable basis for land management decision making.

Among the artifacts which have been collected, visually more distinctive types such as projectile points and bifaces are probably overrepresented in comparison with their actual density, while less distinctive types such as scrapers, "choppers," and wedges are underrepresented. The provenience record does not permit any finer consideration of artifact clustering than has been presented above. The potential for undisturbed features and strata below the plowzone remains largely unknown.

These problems with the quality of our information about the PWRC's prehistoric sites are minor, however, compared with the actual, recognized existence and preservation of the sites, and with the maintenance of a provenienced collection of diagnostic artifacts from them. Despite some incompleteness and imprecision, I believe the data we have are generally reliable regarding the location of the most important of the PWRC's prehistoric sites, the activities and types of occupations which resulted in their creation, and their temporal span.

The continuity of cultural tradition between us and the occupants of the PWRC's historic sites allows, in the absence of specifically archeological data, a large amount of presumption concerning the sites themselves. The basis for presumption is of course a substantial body of documentary data, some of which connects particular sites with historically known individuals and families and with the major events of their lives. Obviously the very nature of our knowledge and attitude towards historic sites reflects these conditions. Indeed, the archeological significance of historic sites stems to a great extent from the potential they offer of integrating historical evidence and problems with archeological methods of investigation.

However, the reliability of the mostly historical data we possess concerning historic sites is difficult for me to gauge. This is among the reasons that several assessments of site significance are tentative. The earliest detailed map showing the entire PWRC area dates to 1861, which means that the existence and location of sites which appeared and disappeared during the previous century and a half may have been overlooked. More thorough review of property and census records would undoubtedly indicate whether or not any such sites do exist, although their locations might remain problematical without archeological investigation. It must also be recognized that houses shown on the earliest maps are schematic in the sense that other associated structures, including slave quarters, are not depicted. Tenant dwellings may have been left off maps as well, or only depicted well after their initial appearance. Clearly, the locations of structures on the early maps are often inexact. There is less of a problem with the reliability of such recent data as photographs, or with older primary documents such as deeds and plats. I do not doubt that a concerted investigation of both historical and archeological sources of evidence would demonstrate, more reliably than has been possible here, the significance of the PWRC's historic sites.

Potential Conflicts

There are presently four projects being planned which may have effects on archeological sites at the PWRC when implemented. The first of these, likely to be implemented within the next 3 to 4 months, entails removal of additional gravel from the margins and bottom of an existing gravel pit along the Kluckhuhn Loop Road directly north of Patuxent Pond (plot 5486 vicinity). The gravel will be used for resurfacing the PWRC's internal roads, and the pit will be made into a pond. Because of the terrace location of the pit, and the documented existence of major artifact clusters nearby, it is possible that a significant prehistoric site formerly existed there. Obviously, the integrity of any such site would have been destroyed by the gravel pitting. Remnants of a site, however, might remain at the pit's margin, and it would be worthwhile to document these remnants prior to their destruction. [After this report

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was drafted, a reconnaissance of the pit's margin, which included shovel test pitting, was made by J. F. Pousson, on June 9, 1987. No artifacts were found, and removal of additional gravel from the pit is consequently not considered likely to affect any archeological resources.]

Two other projects are more involved. Planning for construction of a visitor's center for the PWRC is underway, and the preferred site has been selected -- an upland spur north of Lake Redington (plot 4320 vicinity). There is, at best, a low potential for a major prehistoric site in this area, but moderate to high potential for a minor site. Documentation of the presence or absence of site(s) where construction will entail ground disturbances, and assessments of site significance, will be needed prior to construction. Planning for a new veterinary hospital for the PWRC, while less advanced, would also require a project and site specific archeological assessment prior to implementation. [Two shovel test pits were dug on June 9, 1987, at the site planned for a temporary, prefabricated addition to the existing veterinary hospital, in plot 5465. Only previously graded soils and one modern bottle fragment were found, and construction of this addition is unlikely to affect any significant resources.]

Finally, the State of Maryland and Prince Georges County are planning to upgrade the section of Jericho Park Road between Maryland Route 197 and Jericho Park. Planning and design for this project are evidently at a preliminary stage, and the extent of ground disturbances it might entail remains unclear. If the final design involves conversion of the existing two lanes into four lanes, the PWRC would need to grant a right-of-way easement for construction to proceed. Again, among other things, a project specific assessment of potential effects on archeological resources within the proposed right-of-way would be required prior to, or as a condition of, granting of an easement.

Other than these projects, and another for which archeological monitoring has been recommended separately (i.e., drainage line installation for new Whooping Crane pens), the ongoing operation of the PWRC poses virtually no hazards to known and potential archeological sites. There are, however, a few precautions which it would be well for the PWRC to observe. Should it become necessary, in the future, to begin again cultivating fields, deep plowing (in excess of 8 to 10 inches) should be avoided, due to potentially adverse effects on artifacts and features within the subsoil. Removal of topsoil from one area to another within the PWRC, for gardening or other non-essential purposes, also constitutes a potentially adverse effect on resources, and should be avoided. Finally, the demolition of any standing, abandoned structures should be performed in a manner which minimizes additional ground disturbances, so as to preserve a coherent archeological reflection of the structures and associated contexts.

RECOMMENDATIONS

Conflict Resolution

As indicated above, project specific archeological assessments are required as an initial step toward resolution of potential conflicts between the development of necessary new facilities at the PWRC and the preservation of cultural resources. If an assessment finds that a significant archeological site -- one actually or potentially eligible for listing on the National Register of Historic Places -- would be adversely affected by a project, then further investigation, or mitigation, would be needed to insure compliance with existing law and policy. This section outlines what I believe are appropriate procedures for project specific assessments. The development of plans for detailed investigations or mitigation would require consultations with Fish and Wildlife Service archeologists.

The locating of new facilities should, where possible, avoid areas known to possess archeological sites, particularly sites with potential National Register eligibility. Archeological assessments are most easily, and inexpensively, accomplished for areas least likely to possess sites. These areas consist of formerly cultivated fields which were examined for artifacts after having been plowed during the 1940s and 1950s, and which failed to yield artifacts. A comparison between (the original of) the 1945 vegetation map (Figure 3) and the plan of prehistoric site locations (Figure 4) provides a basis for identifying such areas. This condition and the procedure it warrants (archeological reconnaissance) are not applicable to formerly cultivated areas acquired by the PWRC during the past 25 years. Less attractive for new facilities, but also unlikely to possess sites, are areas of sloping and eroded ground. A field reconnaissance -- involving opportunistic examination of exposed soils -- would probably provide sufficient data for archeological assessments of all such areas. If archeological materials are not discovered, further investigation and mitigation would not be required.

An assessment would need to be based on an archeological survey in areas: 1) where there is a recognized potential for archeological materials; 2) where archeological reconnaissance discloses the existence of materials; or 3) where there is no prior data but the possibility of materials. In most cases, the archeological survey would consist of systematic examination of soils at several test locations in the area(s) of interest. Unless the physiography makes the existence of buried archeological components possible, then examination of surface soils (as opposed to deeper testing) would suffice for an assessment. Where appropriate, deeper testing would be conducted.

Generally, if no artifacts or only very small amounts were to be found during a survey, this would demonstrate the absence of significant resources, and the absence of a need for mitigation. If, however, moderate to large quantities of non-modern artifacts were discovered, this would indicate the presence of a potentially significant site, and additional research would be required. The scope and objectives of additional research, as well as the possible need for and nature of mitigation, would be defined on the basis of consultations among concerned parties, including PWRC managers and Fish and Wildlife Service archeologists. In the vicinity of major clusters of prehistoric artifacts, and of known and significant historic sites, no surveys should be undertaken without prior consultation with Fish and Wildlife Service archeologists, to insure that survey methods and objectives are in keeping with preservation goals, and that mitigation options are clearly understood beforehand.

With regard to the four projects noted at the conclusion of the preceeding section, the following actions should be undertaken. An archeological reconnaissance should be made at the margins of the existing gravel pit which is slated for expansion. Although there is no expectation of an intact prehistoric site in this area, the project presents an opportunity for collection of data from possible remnants of a former site. This office will perform the reconnaissance prior to expansion of the gravel pit. Any artifacts found will be returned to the PWRC, and a memorandum report of findings will be prepared. [As noted above, this reconnaissance was made, and no artifacts were found.]

Once plans for the visitors' center and veterinary hospital are developed, and their sites are more exactly defined, archeological reconnaissance or survey should be undertaken. (This presumes, of course, that known archeological sites will be avoided in locating these facilities.) The proposed site vicinity for the visitors' center has a moderate to high potential for a minor cluster of prehistoric artifacts, because of its location and generally level topography, and since data are lacking, it should be surveyed. I expect that the survey would demonstrate the absence of a National Register eligible site, but this expectation, unsupported by data, is not sufficient for compliance purposes. The veterinary hospital, if located in a formerly cultivated area not known to possess archeological materials, may only require an archeological reconnaissance.

Concerning the expansion of Jericho Park Road, the State Highway Administration of Maryland, as the major partner along with Prince George's County in the development and funding for this project, needs to conduct (or have conducted) archeological surveys throughout all appropriate areas of the expanded right-of-way, including areas which are presently part of the PWRC. The PWRC, as represented by Fish and Wildlife Service archeologists, will need to be assured, on the basis of review of documentation provided by the State Highway Administration, that adequate efforts have been made to locate and identify archeological sites, to assess their significance in terms of potential eligibility for the National Register, and to mitigate adverse effects on potentially eligible sites. Here again, I do not expect the project would advserely affect any significant resources, but compliance with law and policy requires the support of empirical data. I have indicated above that a few historic sites along the road are probably ineligible due to their modernity and lack of association with historically prominent figures. However, for one site -- Briggs II - I suggested the need for additional data in order for an assessment of significance to be made. There is a moderate potential for minor prehistoric sites along the road as well.

Research Needs

The purpose of federal laws governing significant cultural resources on public lands is to insure their protection and where feasible their preservation. Such resources are considered a non-renewable element of our Nation's heritage. Research, consequently, is appropriately guided by a concern for preservation. There is also inevitably concern over the use of funds and personnel for research which may be only indirectly related to an agency's primary mission. Fitting these concerns with the requirement, under the National Historic Preservation Act, as amended, that agencies inventory and nominate to the register significant cultural resources under their jurisdiction, is a difficult problem. In practice, the problem is most often resolved by conducting needed archeological research, to locate and evaluate sites, commensurate with the potential for effects due to agency undertakings. In other words, the attitude is that if cultural resources, including both identified and unidentified archeological sites, are not threatened by existing and anticipated land management practices, then research on such resources may justifiably be assigned a low priority.

What this means for the PWRC is essentially that the project specific assessments described above must have priority over any general inventory of sites in areas not likely to be subject to ground disturbances. It does not mean, however, that research should be neglected, or that well defined research goals are unnecessary. Without the development of a general outline of research needs, the objectives of resource preservation and the bases for evaluation of site significance are likely to be misunderstood. What follows, in lieu of a fully coherent research design, are several suggestions regarding what I believe are worthwhile avenues of investigation.

Some of the research needs relevant to the PWRC are regional in scope, and a few concern natural processes as much as they do human behavior. With regard to the area's prehistory, basic questions remain to be answered concerning development of the floodplain of the Patuxent River, and of the biotic community there. These developments, along with the establishment of runs of anadromous fish, are likely to have occasioned changes in prehistoric subsistence and settlement patterns, most evident at the PWRC in the abundance there of Late Archaic period artifacts. Studies of local geomorphology and palynology would help better define the environmental contexts of prehistoric cultural development. The geomorphology might also provide a basis for anticipating the occurance of buried sites, including potential Paleo-Indian components.

Patterns of artifact distribution are thus far poorly defined, and allow only a general identification of major sites. Even though these sites, so far as is known, are confined to the plowzone, there are still likely to be patterns to the locations of artifacts which resulted from patterns in the organization of prehistoric activities. If nothing else, the definition of smaller clusters, at present included within larger sites, might give us a better image of the size of settlements during various periods, and of the functional characteristics of depositionally associated assemblages of artifacts. In part, this would be a matter distinguishing between base camps and other, smaller types of camps. Controlled collections of artifacts from the minor sites which probably exist in floodplain and upland areas of the PWRC would of course supplement information concerning the major sites; such collections should, where possible, be made even if the National Register eligibility of the sites is improbable.

Closer study of the characteristics of the artifacts already collected and curated at the PWRC, and comparisons between these artifacts and those studied by Steponaitis (1980:7-9), especially the Ogle Collection, would undoubtedly yield a finer understanding of temporal and functional variation among the artifacts. Together with other courses of investigation, this would yield more detailed interpretations of prehistoric activities. Analyses of microscopic wear on tools, as well as more arcane investigations such as blood residue analysis, could conceivably be pursued with the PWRC's collection.

Concerning the historic sites at the PWRC, more study of a wider range of historical documentation would be at least as useful as study of the sites themselves. The social, economic, and demographic characteristics of the historical population of the PWRC vicinity are as faithfully reflected by the documentation of land grants and transfers, by census records, by court and church records, and by the miscellaneous details of oral history, as by the physical characteristics of the historic sites. It would be especially useful to have more precise knowledge of the sizes and locations (i.e., boundaries) of the earliest plantations/farmsteads, and of the sizes of the households and workforces employed on these properties. Property transfers and the evolving patterns of size and composition of farms; the involvement of individuals in documented political, economic, and social activities; and various other, more general aspects of local and regional history would all be essential data for an understanding of the historic sites. Conversely, of course, the sites themselves contain data which could enrich our understanding of nineteenth century farming, of the kinds of implements and household goods used by individuals and families of differing economic means and social position, and of local responses to the revolutionary transformations of collective human lifeways which have occured during the past two centuries.

Finally, more documentation, or summarizing and reporting, of the PWRC's history is needed for a broader understanding of its physical and institutional development and scientific achievements. It is probable that the role which the PWRC has played in wildlife research will in the future warrent its nomination to the National Register. The justification for such a nomination would most usefully include a document which takes up the PWRC's history where Morley (1949) left-off, and carries it through to the present. The specifically archeological utility of such a report would be with regard to details of construction of facilities and other aspects of land use potentially affecting archeological sites. Because the property of the Beltsville Experimental Forest of the BARC has to a great extent been taken over by the PWRC, it would also be useful if the PWRC and BARC could cooperatively produce a brief history of that institution.

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APPENDIX A

Prehistoric Artifact Provenience
Patuxent Wildlife Research Center

A Listing of Artifact Catalogue Numbers by Cluster and Plot

APPENDIX A

A Listing of Artifacts Catalogue Numbers by Cluster and Plot -- PWRC

Cluster A (n=50; 44 prehistoric, 6 historic)

Plot 2675 - n=2
  cat. no. 283
   " " 395

Plot 2676 - n=37
  cat. no. 279/281
   " " 336-339
   " " 386-388 (388 hist.)
   " " 407/411
   " " 414/432
   " " 542-548
   " " 621/632
   " " 635/639
   " " 641/656
   " " 668/675
  old series no. 13 (?) n=5 (4 hist.)
   " " " 1 (?) n=4

Plot 2686 - n=4
  Cat. No. 453-456

Plot 2676/2686 - n=1
  Cat. No. 389

Plot 2675/2676 - n=6
  Cat. No. 381-384 (384 hist.)
   " " 385/654

Isolated finds in vicinity of Cluster A - n=4
  plot 1629 - no number
   " 2621 - cat. no. 396
   " 2654 - cat. no. 623 (old series no. 17)
   " 2655 - old series no. 18

Cluster B (n=169; 167 prehistoric, 2 historic)

Plot 2687/2688 - n=52
  cat. no. 93-134
  cat. no. 534-541
  cat. no. 659/661

Plot 2688 - n=12
  cat. no. 509-520

Plot 2697 - n=55
  cat. no. 410/589
  cat. no. 697-749 (718 hist.)

Plot 2697/2698 - n=1
  cat. no. 431

Plot 2698 - n=48
  cat. no. 311-320
  " " 365-380
  " " 457-460
  " " 502-508
  " " 549-556 (551 hist.)
  " " 607/670
  " " 678

Plot 2708 - n=1
  cat. no. 399

Isolated find in vicinity of Cluster B - n=1
  plot 3690 - cat. no. 618

Cluster C (n=56 + approx. 50 unsorted "flakes" + 1 stoneware frag./hist.)

Plot 3559 (n=8)
  cat. no. 689-696

Plot 4520 - n=3
  cat. no. 416
  old series no. 69 (missing)
  unnumbered object

Plot 4530/4531/4540/4541 - n=45 (+50 flakes + 1 stoneware frag)
  cat. no. 1-15
  cat. no. 63-92
(The provenience of these objects is also given descriptively as Henson's Field - the accuracy of the plot provenience, especially 4540/4541, is questionable)

Isolated finds in vicinity of Cluster C - n=2
  plot 3564 - cat. no. 282
  plot 4558/4559 - cat. no. 669

Cluster D (n=14)

Plot 4321/4322 - n=1
  cat. no. 658

Plot 4332 - n=9
  cat. no. 280
  " " 419/420
  " " 449-452
  " " 637/648

Plot 4342 - n=4
  cat. no. 352/353
  " " 633/665

Isolated finds in vicinity of Cluster D - n=11
  plot 3332 - cat. no. 406
  " 3319 - " " 390-392
  " 4317 - " " 479-485

Cluster E (n=20)

Plot 5414 - n=15
  cat. no. 354/405
  " " 408
  " " 421/422
  " " 527-533
  " " 662/674
  old series no. 72 (adz)

Plot 5422 - n=3
  cat. no. 326/327/393

Plot 5423 - n=2
  cat. no. 397/398

Cluster F (n=219; 216 prehistoric, 3 historic)

Plots 5425/5426 - n=70
  cat. no. 16- 35
  " " 135-152
  " " 276-278
  " " 571-579
  " " 581-586
  " " 638/646
  " " 649/653
  " " 664/681
  " " 682
  old series no. 16 - n=7

Plot 5426 - n=4
  cat. no. 321-324

Plot 5433/5434/5435 - n=42
  cat. no. 205-246

Plot 5435 - n=103
cat. no. 36-62 (54/62 hist.)
" " 181-204 (203 hist.)
" " 286-310
" " 355-364
" " 557-570
" " 636
old series no. 6 - n=2

Cluster G (n=16)

Plot 5475 - n=9
cat. no. 493-501

Plot 5485 - n=3
cat. no. 394/403/587

Plot 5505 - n=1
cat. no. 409

"A Farm Gravel Pit" - n=1
cat. no. 620

"West of A Farm Gravel Pit" - n=2
cat. no. 580/597

Isolated finds in vicinity of Clusters E, F, and G - n=6
plot 4449 - cat. no. 427/428
" 5439 - " " 671
" 5450 - " " 417
" 5463 - " " 425/426

"Conservation Farm" ("A Farm", Kluckhuhn Loop, etc.) (n=29)
cat. no. 343-351
" " 404/429/430
" " 436-438 (436 hist.)
" " 521-526
" " 604-606
" " 644
old series no. 5 - n=2
" " " 11 - n=2
(These objects probably derive from Clusters E and F)

"Along Road near Forest Service Headquarters" (Plot 4491 ?; n=7)
cat. no. 472-478

"Along Road near Gull Pens" (?; n=1)
cat. no. 750

APPENDIX A (Cont.)

"Schaffer farm field where Indian arrow points are common, along east border of Patuxent Research Refuge, Pr. Geo. Co., Md." (Probably Plot 5419/5429; n=2; both are brass buttons) cat. no. 423/424.

Patuxent Wildlife Research Center (PWRC/no more specific provenience; n=171 + approx. 240 uncatalogued/differently catalogued objects)

Cat. no. 153-180
" " 247-275
" " 284/285
" " 325
" " 328-330
" " 331-335
" " 340-342
" " 400-402
" " 412/413
" " 415/418
" " 433-435
" " 439-448
" " 461-471
" " 486-492
" " 588
" " 590-596
" " 598-603
" " 608/609
" " 610-617
" " 619/622
" " 624-631
" " 634/640
" " 642/643
" " 645/647
" " 650-652
" " 655/657
" " 660/663
" " 666/667
" " 671-673

Cat. no. 676-677
" " 679-680
" " 683-688
old series no. 3 n=2
" " " 7
" " " 14 n=5
" " " 15
" " " 20 (missing)
C-PR-58 series 1-34
C-PR-59 series 35-64

APPENDIX B

Prehistoric Artifact Characteristics
Patuxent Wildlife Research Center
Summary Tabulations

N.B.: I have attempted, in a general and impressionistic way, to make this sorting of artifact types consistent with those made by Steponaitis (1980, 1986).

TABLE 4

Summary of Characteristics
PWRC Artifact Collection

Artifact Category:	Provenience Clusters A	B	C	D	E	F	G	Cons. Frm.	Other	"PWRC"	Total
Projectile Points	30	76	22	9	11	87	6	18	19	165	443
Bifaces -											
Preforms	6	24	9	1	-	46	-	3	3	31	123
Knives		8	1	-	1	8	1	-	1	10	30
Fragments	5	35	13	-	1	36	3	2	2	23	120
Scrapers	1	9	1	1	1	11	-	2	2	2	30
Drills	-	6	1	1	-	6	-	-	-	1	15
Hammerstones	1	-	-	-	-	3	1	-	-	10	15
Three-quarter Grooved Axes	-	-	-	-	-	1	-	-	-	6	7
Pottery	-	2	-	-	2	1	-	3	-	3	11
Flakes/Cores	-	3	50*	-	3	6	2	-	2	100*	166
Shell	-	1	1	-	-	-	-	-	-	3	5
Hematite/Ocher	-	-	1	-	-	-	-	-	-	6	7
Other Prehistoric	1	3	7	2	1	11	3	-	3	21	52
Total Prehistoric	44	167	106	14	20	216	16	28	32	381	1,024
Historic -											
Ceramic Frgmts.	-	-	1	-	-	-	-	-	-	7	8
Bottle Frgmts.	-	-	-	-	-	-	-	-	-	9	9
Clay Pipe Frgmts.	6	1	-	-	-	2	-	1	-	8	18
Other	-	1	-	-	-	1	-	-	2	6	10
Total Historic	6	2	1	-	-	3	-	1	2	30	45
Grand Total	50	169	107	14	20	219	16	29	34	411	1,069

*estimated quantities

TABLE 5

Projectile Points, All Areas, PWRC

Point Types (by periods):	Materials: Quartz	Quartzite	Rhyolite	Other	Total
Early Archaic -					
Kirk-like	-	1	2	-	3
Bifurcate Base	6	-	4	1	11
Middle Archaic -					
Stanley-like	-	-	2	-	2
Morrow Mountain	4	2	2	-	8
Guilford	1	3	-	-	4
Late Archaic -					
Piscataway	17	-	-	-	17
Brewerton-like					
side notched	20	2	3	-	25
corner notched	2	-	-	-	2
eared notched	1	-	4	-	5
eared triangular	4	-	1	-	5
Otter Creek/Normanskill-like	3	3	3	1	10
Vernon	16	1	1	-	18
Holmes	46	65	11	2	124
Clagett	3	-	-	-	3
Savannah River	-	8	3	-	11
Koens-Crispin	-	1	3	-	4
Susquehanna	-	-	1	-	1
Transitional/Orient-like	-	2	1	-	3
Early Woodland-					
Calvert	11	-	1	-	12
Middle Woodland -					
Rossville	2	1	2	-	5
Selby Bay					
lanceolate	-	-	1	-	1
stemmed	-	-	6	-	6
side notched	-	-	12	-	12
Lake Woodland -					
Potomac	13	-	-	-	13

TABLE 5

Projectile Points, All Areas, PWRC

Point Types	Materials:				
(by periods):	Quartz	Quartzite	Rhyolite	Other	Total
Untyped Points -					
lanceolate	5	2	2	-	9
stemmed	7	9	13	-	29
stemmed (broken)	9	13	11	1	34
side notched	1	1	2	1	5
corner notched	7	-	1	1	9
single shoulder	4	9	5	-	18
Point Fragments/lost points	22	11	-	1	34
TOTAL	204	134	97	8	443

TABLE 6

Projectile Points, Cluster A, PWRC

Point Types	Materials:				
(by periods):	Quartz	Quartzite	Rhyolite	Other	Total
Early Archaic -					
Kirk-like					
Bifurcate Base					
Middle Archaic -					
Stanley-like					
Morrow Mountain		1			1
Guilford		2			2
Late Archaic -					
Piscataway	1				1
Brewerton-like					
side notched					
corner notched	1				1
eared notched					
eared triangular					
Otter Creek/Normanskill-like	1				1
Vernon					
Holmes	4	3	1	1*	9
Clagett					
Savannah River-like		3			3
Koens-Crispin					
Susquehanna					
Transitional/Orient-like		1			1
Early Woodland -					
Calvert	1				1
Middle Woodland -					
Rossville					
Selby Bay					
lanceolate					
stemmed					
side notched			1		1
Late Woodland -					
Potomac	1				1

*Ironstone

TABLE 6 (continued)

Projectile Points, Cluster A, PWRC

Point Types:	Materials:				
(by periods):	Quartz	Quartzite	Rhyolite	Other	Total
Untyped Points -					
lanceolate	1	-	-		1
stemmed	-	-	1		1
stemmed (broken)	1	-	2		3
side notched	-	-	1		1
corner notched	-	-	-		-
Point fragments/lost points	1	1	-	-	2
TOTAL	12	11	6	1	30

TABLE 7

Projectile Points, Cluster B, PWRC

Point Types	Materials:				
(by periods):	Quartz	Quartzite	Rhyolite	Other	Total
Early Archaic -					
Kirk-like	-	-	-	-	-
Bifurcate Base	4	-	-	-	4
Middle Archaic -					
Stanley-like	-	-	-	-	-
Morrow Mountain	-	-	-	-	-
Guilford	1	-	-	-	1
Late Archaic -					
Piscataway	1	-	-	-	1
Brewerton-like					
side notched	6	-	1	-	7
corner notched	-	-	-	-	-
eared notched	-	-	-	-	-
eared triangular	3	-	-	-	3
Otter Creek/Normanskill-like	-	-	-	-	-
Vernon	3	-	-	-	3
Holmes	9	7	5	1*	22
Clagett	-	-	-	-	-
Savannah River-like	-	1	-	-	1
Koens-Crispin	-	-	-	-	-
Susquehanna	-	-	-	-	-
Transitional/Orient-like	-	-	-	-	-
Early Woodland -					
Calvert	3	-	1	-	4
Middle Woodland -					
Rossville	1	-	-	-	1
Selby Bay					
lanceolate	-	-	1	-	1
stemmed	-		1	-	1
side notched	-	-	2	-	2
Late Woodland -					
Potomac	7	-	-	-	7

*ironstone

TABLE 7 (Continued)

Projectile Points, Cluster B, PWRC

Point Types (by periods):	Materials: Quartz	Quartzite	Rhyolite	Other	Total
Untyped Points -					
lanceolate	-	-	-	-	-
stemmed	1	1	2	-	4
stemmed (broken)	-	1	3	-	4
side notched	-	-	-	-	-
corner notched	-	-	-	-	-
single shoulder	-	3	1	-	4
Point fragments/lost points	5	1	-	-	6
Total	44	14	17	1	76

TABLE 8

Projectile Points, Cluster C, PWRC

Point Types (by periods):	Materials:				
	Quartz	Quartzite	Rhyolite	Other	Total
Early Archaic -					
Kirk-like	-	-	-	-	-
Bifurcate Base	-	-	-	-	-
Middle Archaic -					
Stanley-like	-	-	-	-	-
Morrow Mountain	-	-	-	-	-
Guilford	-	-	-	-	-
Late Archaic -					
Piscataway	-	-	-	-	-
Brewerton-like					
side notched	2	-	-	-	2
corner notched	-	-	-	-	-
eared notched	-	-	-	-	-
eared triangular	-	-	-	-	-
Otter Creek/Normanskill-like	1	-	-	-	1
Vernon	-	-	-	-	-
Holmes	3	4	-	-	7
Clagett	-	-	-	-	-
Savannah River-like	-	1	-	-	1
Koens-Crispin	-	-	-	-	-
Susquehanna	-	-	-	-	-
Transitional/Orient-like	-	-	-	-	-
Early Woodland -					
Calvert	2	-	-	-	2
Middle Woodland -					
Rossville	-	-	1	-	1
Selby Bay					
lanceolate	-	-	-	-	-
stemmed	-	-	-	-	-
side notched	-	-	-	-	-
Late Woodland -					
Potomac	-	-	-	-	-
Untyped Points -					
lanceolate	-	-	-	-	-
stemmed	-	1	-	-	1
stemmed (broken)	-	2	-	-	2
side notched	-	-	-	-	-
corner notched	-	-	-	-	-

TABLE 8 (continued)

Projectile Points, Cluster C, PWRC

Point Types: (by periods):	Materials: Quartz	Quartzite	Rhyolite	Other	Total
Point fragments/lost points	3	1	-	1*	5
TOTAL	11	9	1	1	22

*unknown

TABLE 9

Projectile Points, Cluster D, PWRC

Point Types (by periods):	Materials: Quartz	Quartzite	Rhyolite	Other	Total
Early Archaic -					
Kirk-like	-	-	-	-	-
Bifurcate Base	-	-	-	-	-
Middle Archaic -					
Stanley-like	-	-	-	-	-
Morrow Mountain	-	-	-	-	-
Guilford	-	1	-	-	1
Late Archaic -					
Piscataway	1	-	-	-	1
Brewerton-like					
side notched	1	-	-	-	1
corner notched	1	-	-	-	1
eared notched	-	-	-	-	-
eared triangular	-	-	-	-	-
Otter Creek/Normanskill-like	-	-	-	-	-
Vernon	-	-	-	-	-
Holmes	1	-	-	-	1
Clagett	-	-	-	-	-
Savannah River-like	-	-	-	-	-
Koens-Crispin	-	-	-	-	-
Susquehanna	-	-	-	-	-
Transitional/Orient-like	-	-	-	-	-
Early Woodland -					
Calvert	-	-	-	-	-
Middle Woodland -					
Rossville	-	1	1	-	2
Selby Bay	-	-	-	-	-
lanceolate	-	-	-	-	-
stemmed	-	-	-	-	-
side notched	-	-	-	-	-
Late Woodland -					
Potomac	-	-	-	-	-

TABLE 9 (continued)

Projectile Points, Cluster D, PWRC

Point Types: (by periods):	Materials: Quartz	Quartzite	Rhyolite	Other	Total
Untyped Points -					
lanceolate	-	-	-	-	-
stemmed	1	-	-	-	1
stemmed (broken)	-	-	-	-	-
side notched	-	-	-	-	-
corner notched	-	-	-	-	-
single shoulder	1	-	-	-	1
Point fragments/lost points	-	-	-	-	-
TOTAL	6	2	1	-	9

TABLE 10

Projectile Points, Cluster E, PWRC

Point Types (by periods):	Materials: Quartz	Quartzite	Rhyolite	Other	Total
Early Archaic -					
Kirk-like	-	-	-	-	-
Bifurcate Base	-	-	1	-	1
Middle Archaic -					
Stanley-like	-	-	-	-	-
Morrow Mountain	-	-	-	-	-
Guilford	-	-	-	-	-
Late Archaic -					
Piscataway	1	-	-	-	1
Brewerton-like					
side notched	-	-	-	-	-
corner notched	-	-	-	-	-
eared notched	-	-	-	-	-
eared triangular	-	-	-	-	-
Otter Creek/Normanskill-like	-	-	-	-	-
Vernon	-	-	-	-	-
Holmes	-	-	-	-	-
Clagett	-	-	-	-	-
Savannah River-like	-	-	-	-	-
Koens-Crispin	-	-	1	-	1
Susquehanna	-	-	1	-	1
Transitional/Orient-like	-	-	-	-	-
Early Woodland -					
Calvert	-	-	-	-	-
Middle Woodland -					
Rossville	-	-	-	-	-
Selby Bay	-	-	-	-	-
lanceolate	-	-	-	-	-
stemmed	-	-	-	-	-
side notched	-	-	-	-	-
Late Woodland -					
Potomac	2	-	-	-	2

TABLE 10 (Continued)

Projectile Points, Cluster E, PWRC

Point Types: (by periods):	Materials: Quartz	Quartzite	Rhyolite	Other	Total
Untyped Points -					
lanceolate	-	1	-	-	1
stemmed	1	-	-	-	1
stemmed (broken)	-	-	1	-	1
side notched	-	-	-	-	-
corner notched	1	-	-	-	1
Point fragments/lost points	-	1	-	-	1
TOTAL	5	2	4	-	11

TABLE 11

Projectile Points, Cluster F, PWRC

Point Types (by periods):	Materials: Quartz	Quartzite	Rhyolite	Other	Total
Early Archaic -					
Kirk-like	-	-	1	-	1
Bifurcate Base	-	-	1	-	1
Middle Archaic -					
Stanley-like	-	-	1	-	1
Morrow Mountain	-	-	-	-	-
Guilford	-	-	-	-	-
Late Archaic -					
Piscataway	4	-	-	-	4
Brewerton-like					
side notched	4	-	-	-	4
corner notched	-	-	-	-	-
eared notched	1	-	-	-	1
eared triangular	-	-	-	-	-
Otter Creek/Normanskill-like	1	-	1	-	2
Vernon	6	-	-	-	6
Holmes	6	24	-	-	30
Clagett	-	-	-	-	-
Savannah River-like	-	1	-	-	1
Koens-Crispin	-	1	2	-	3
Susquehanna	-	-	-	-	-
Transitional/Orient-like	-	1	1	-	2
Early Woodland -					
Calvert	2	-	-	-	2
Middle Woodland -					
Rossville	-	-	-	-	-
Selby Bay					
lanceolate	-	-	-	-	-
stemmed	-	-	1	-	1
side notched	-	-	5	-	5
Late Woodland -					
Potomac	-	-	-	-	-

TABLE 11 (Continued)

Projectile Points, Cluster F, PWRC

Point Types: (by periods):	Materials: Quartz	Quartzite	Rhyolite	Other	Total
Untyped Points -					
lanceolate	1	1	1*	-	3
stemmed	2	2#	6	-	10
stemmed (broken)	2	3	-	-	5
side notched	1	-	-	-	1
corner notched	-	-	-	-	-
single shoulder	-	1	-	-	1
Point fragments/lost points	-	3	-	-	3
TOTAL	30	37	20	-	87

# 1 of these is Bare Island-like
* this is actually a very elongate triangular point.

TABLE 12

Projectile Points, Cluster G, PWRC

Point Types (by periods):	Materials: Quartz	Quartzite	Rhyolite	Other	Total
Early Archaic -					
Kirk-like	-	-	-	-	-
Bifurcate Base	-	-	-	-	-
Middle Archaic -					
Stanley-like	-	-	-	-	-
Morrow Mountain	-	-	-	-	-
Guilford	-	-	-	-	-
Late Archaic -					
Piscataway	1	-	-	-	1
Brewerton-like					
side notched	-	-	-	-	-
corner notched	-	-	-	-	-
eared notched	-	-	-	-	-
eared triangular	-	-	-	-	-
Otter Creek/Normanskill-like	-	-	-	-	-
Vernon	-	-	-	-	-
Holmes	1	1	1	-	3
Clagett	-	-	-	-	-
Savannah River-like	-	-	-	-	-
Koens-Crispin	-	-	-	-	-
Susquehanna	-	-	-	-	-
Transitional/Orient-like	-	-	-	-	-
Early Woodland -					
Calvert	-	-	-	-	-
Middle Woodland -					
Rossville	-	-	-	-	-
Selby Bay	-	-	-	-	-
lanceolate	-	-	-	-	-
stemmed	-	-	-	-	-
side notched	-	-	-	-	-
Late Woodland -					
Potomac	-	-	-	-	-

TABLE 12 (Continued)

Projectile Points, Cluster G, PWRC

Point Types: (by periods):	Materials: Quartz	Quartzite	Rhyolite	Other	Total
Untyped Points -					
lanceolate	-	-	-	-	-
stemmed	-	-	-	-	-
stemmed (broken)	-	-	-	-	-
side notched	-	-	1	-	1
corner notched	-	-	-	-	-
Point fragments/lost points	1	-	-	-	1
TOTAL	3	1	2	-	6

TABLE 13

Projectile Points, "Conservation Farm", PWRC

Point Types	Materials:				
(by periods):	Quartz	Quartzite	Rhyolite	Other	Total
Early Archaic -					
Kirk-like	-	-	-	-	-
Bifurcate Base	-	-	-	-	-
Middle Archaic -					
Stanley-like	-	-	-	-	-
Morrow Mountain	-	-	-	-	-
Guilford	-	-	-	-	-
Late Archaic -					
Piscataway	-	-	-	-	-
Brewerton-like					
side notched	-	-	1	-	1
corner notched	-	-	-	-	-
eared notched	-	-	2	-	2
eared triangular	-	-	1	-	1
Otter Creek/Normanskill-like	-	1	1	-	2
Vernon	1	-	-	-	1
Holmes	-	3	-	-	3
Clagett	1	-	-	-	1
Savannah River-like	-	-	-	-	-
Koens-Crispin	-	-	-	-	-
Susquehanna	-	-	-	-	-
Transitional/Orient-like	-	-	-	-	-
Early Woodland -					
Calvert	-	-	-	-	-
Middle Woodland -					
Rossville	-	-	-	-	-
Selby Bay	-	-	-	-	-
lanceolate	-	-	-	-	-
stemmed	-	-	1	-	1
side notched	-	-	1	-	1
Late Woodland -					
Potomac	-	-	-	-	-

TABLE 13
(Continued)

Projectile Points, "Conservation Farm", PWRC

Point Types:	Materials:				
(by periods):	Quartz	Quartzite	Rhyolite	Other	Total
Untyped Points -					
lanceolate	-	-	-	-	-
stemmed	-	-	1	-	1
stemmed (broken)	-	-	-	-	-
side notched	-	-	-	-	-
corner notched	1	-	-	-	1
single shoulder	-	1	-	-	1
Point fragments/lost points	2	-	-	-	2
TOTAL	5	5	8	-	18

TABLE 14

Projectile Points, Isolated Finds/Small Clusters

Point Types (by periods):	Materials: Quartz	Quartzite	Rhyolite	Other	Total
Early Archaic -					
Kirk-like	-	1*	-	-	1
Bifurcate Base	1	-	-	-	1
Middle Archaic -					
Stanley-like	-	-	-	-	-
Morrow Mountain	-	-	1	-	1
Guilford	-	-	-	-	-
Late Archaic -					
Piscataway	1	-	-	-	1
Brewerton-like					
side notched	3	-	-	-	3
corner notched	-	-	-	-	-
eared notched	-	-	-	-	-
eared triangular	-	-	-	-	-
Otter Creek/Normanskill-like	-	-	-	-	-
Vernon	1	-	-	-	1
Holmes	4	1	-	-	5
Clagett	-	-	-	-	-
Savannah River-like	-	-	-	-	-
Koens-Crispin	-	-	-	-	-
Susquehanna	-	-	-	-	-
Transitional/Orient-like	-	-	-	-	-
Early Woodland -					
Calvert	-	-	-	-	-
Middle Woodland -					
Rossville	-	-	-	-	-
Selby Bay	-	-	-	-	-
lanceolate	-	-	-	-	-
stemmed	-	-	1	-	1
side notched	-	-	-	-	-
Late Woodland -					
Potomac	-	-	-	-	-

*MacCorkle Stemmed (?); Broyles 1971:71.

TABLE 14 (Continued)

Projectile Points, Isolated Funds/Small Clusters

Point Types (by periods):	Materials:				
	Quartz	Quartzite	Rhyolite	Other	Total
Untyped Points -					
lanceolate	-	-	-	-	-
stemmed	-	1	1	-	2
stemmed (broken)	-	-	-	-	-
side notched	-	-	-	-	-
corner notched	1	-	-	-	1
single shoulder	-	1	-	-	1
Point fragments/lost points	-	1	-	-	1
Total	11	5	3	-	19

TABLE 15

Projectile Points, Non-specific, PWRC Provenience

Point Types	Materials:				
(by periods):	Quartz	Quartzite	Rhyolite	Other	Total
Early Archaic -					
Kirk-like	-	-	1	-	1
Bifurcate Base	1	-	2	1 (chert)	4
Middle Archaic -					
Stanley-like	-	-	1	-	1
Morrow Mountain	4	1	1	-	6
Guilford	-	-	-	-	-
Late Archaic -					
Piscataway	7	-	-	-	7
Brewerton-like					
side notched	4	2	1	-	7
corner notched	-	-	-	-	-
eared notched	-	-	2	-	2
eared triangular	1	-	-	-	1
Otter Creek/Normanskill-like	-	2	1	1* (chert)	4
Vernon	5	1	1		7
Holmes	18	22	4	-	44
Clagett	2	-	-	-	2
Savannah River-like	-	2	3	-	5
Koens-Crispin	-	-	-	-	-
Susquehanna	-	-	-	-	-
Transitional/Orient-like	-	-	-	-	-
Early Woodland-					
Calvert	3	-	-	-	3
Middle Woodland -					
Rossville	1	-	-	-	1
Selby Bay	-	-	-	-	-
lanceolate	-	-	-	-	-
stemmed	-	-	2	-	2
side notched	-	-	3	-	3
Late Woodland -					
Potomac	3	-	-	-	3

* actually Meadowood-like

TABLE 15 (continued)

Projectile Points, Non-Specific PWRC Provenience

Point Types (by periods):	Materials: Quartz	Quartzite	Rhyolite	Other	Total
Untyped Points -					
lanceolate	3	-	1	-	4
stemmed	2	4	2	-	8
stemmed (broken)	6	7	5	1	19
side notched	-	1	-	1	2
corner notched	4	-	1	1	6
single shoulder	3	3	4	-	10
Point fragments/lost points	10	3	-	-	13
Total	77	48	35	5	165

APPENDIX C

A List of Historical Maps - Patuxent Wildlife Research Center Vicinity

Appendix C

A List of Historical Maps
Patuxent Wildlife Research Center Vicinity

1. 1794 - Dennis Griffith's Map of the State of Maryland. This map is the first which shows any details of historical development in the PWRC vicinity. Among the features it depicts are local roads, churches, major residences, mills, furnaces and forges. Various repositories possess copies of this map, including the Library of Congress and the Maryland Hall of Records. Papenfuse and Coale's atlas (1982) contains color reproductions of it.

2. 1827 - Map No. 2 of a set of four showing the route of the proposed Maryland Canal. This map illustrates the area directly west of the PWRC in considerable detail, showing, among other features, the residences of "Dr. Duval" and "Z. Duval" and a store belonging to the Duvalls. The alignment of the "Road to Queen Ann" on this map differs from that shown on previous and subsequent maps. Here, inaccurately (?), it heads south-southwesterly rather than south-southeasterly in the vicinity of the Zadock Duvall residence, which later became the Luther D. Jones residence (destroyed during construction of the Beltsville Airport). Copies of these maps were obtained at the National Archives (Record Group 77, Canals 40).

3. 1831 - B.H. Latrobe's Map of the "Projected Lateral Rail Road to the City of Washington," which became the Washington Branch of the Baltimore and Ohio Railroad. This map shows that by 1831 Dr. Charles Duvall had acquired Snowden's mill, and that Scassets Branch (Cash Branch) was an alternative route for the rail line. T. Snowden and N. Snowden are identified as the major landowners north and south of the Patuxent River. The map is contained in the 1831 Annual Report of the Baltimore and Ohio Railroad Co. (Library of Congress). Both Dr. Charles Duvall and Zelic (i.e., Zadock) Duvall are mentioned in the report's description of the Cash Branch route.

4. 1861 - Martenet's Map of Prince George's County. This map, published by Simon J. Martenet of Baltimore, depicts roads, churches, schools, mills, shops, houses, and other features in greater detail than any previous map. The identifications it provides of house owners more than compensates for minor mapping errors. Various repositories possess copies.

5. 1878 - Hopkins' Maps of Anne Arundel and Prince George's Counties. These maps appear in atlases of "15 miles around" Washington and Baltimore published by G.M. Hopkins of Philadelphia. The maps are similar to Martenet's, but reflect post-Civil War ownership changes and the development of various new features. Several repositories possess copies.

6. 1903 - Maryland Geological Survey Map of Prince George's Co. This map, made with the cooperation of the U.S. Geological Survey, is one of the earliest of the series of modern topographic map of the area published by Maryland and the U.S. This edition is captioned "Surveyed in 1885-'86, '95-97, and revised in 1900." It is basicly the same as U.S.G.S. maps (15' quads of Laurel, Maryland) published in 1890, 1907, and 1926. A copy was obtained at the Library of Congress.

7. 1912 - Maryland Board of Forestry Map of Prince George's Co. This map, based on the Maryland Geological Survey map of the county, depicts the extent and characteristics of local forest together with areas under cultivation or otherwise developed. A copy was obtained at the Library of Congress.

8. 1936 - Maryland Geological Survey Map of Prince George's Co. This is essentially an updated version of the 1903 map, showing newer structures and not showing some older structures. The Library of Congress, as well as other repositories, has a copy.

9. 1940 (1941) - U.S. Department of the Interior, Fish and Wildlife Service Maps of the Patuxent Research Refuge. This series of maps, numbered 42PAT33 through 42PAT42, depicts various geographical and

legal (tract boundary) data, including buildings, roads, cultivated fields, and areas of scrub and mature forest. These are also the first maps with the PWRC's grid system of 3,300 ft. square blocks and 330 ft. square plots. The PWRC, and the Regional Office in Newton Corner, Mass., have copies of these maps.

10. 1945 - Patuxent Research Refuge/Vegetional Types. This map, two parts made with the assistance of the Soil Conservation Service, shows successive vegetational associations by means of color coding, as well as cultivated areas, buildings, roads, etc. It also reproduces, and explains, the PWRC's grid system. The PWRC possesses multiple copies of this map.

11. 1946 (1954) - Maryland Geological Survey Map of Prince George's Co. This map depicts the physical development of the area during the 1930s and 1940s.

12. 1948 (1950) - Roads and Trails, Beltsville Experimental Forest, Northeastern Forest Experiment Station, Prince Georges County, Maryland. This map depicts the named and numbered roads and trails of the Experimental Forest more accurately than any other. The PWRC has two copies, each marked with distinct, post-1950 revisions. One copy indicates, among other things, the location of the Mitchell/Hoffman site and its associated cemetaries.

13. 1951/1965 (1971, 1979) - U.S. Geological Survey 7½' Quadrangles of Laurel, Maryland. These are the most modern standard topographic maps of the PWRC vicinity.

APPENDIX D

Archeological Testing at the Crane Pen Site (18PR312) - 1986

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Archeological Testing at the Crane Pen Site (18PR312) -- 1986

Introduction

Archeological testing was conducted at the proposed site of a new crane breeding pen in the Rare and Endangered Species section of the PWRC during June and July of 1986. The report of a prehistoric site (18PR162) recorded by the State Archeologist in 1972 indicated that archeological resources were present in the vicinity which could be affected by construction. The initial testing did, in fact, reveal one concentration of stone tool manufacturing debris, very light scatters of similar lithic debris in other locations, and evidence for historical usage of the vicinity. More intensive testing where the lithic debris concentration was located suggested the presence there of a significant prehistoric site. At the same time, the more intensive testing mitigated the impact of construction on the site. Because the site is apparently not the same as the one recorded in 1972, a new site designation has been made -- 18PR312. Subsequent analysis of artifacts previously collected in the vicinity, as described above, indicates the existence of two clusters, E and F, which generally correspond with the two sites. There may, however, be some degree of spatial overlap between the sites. The testing was done by National Park Service Archeologist Dana Linck, assisted by Fish and Wildlife Service Archeologist Kevin Kilcullen and others, primarily volunteers and Youth Conservation Corps participants.

Objectives and Methods

The archeological testing at the crane pen site was intended to locate artifact concentrations reflecting loci of prehistoric activity, and to assess the significance of such concentrations, in order to provide any mitigation needed to proceed with planning and construction of the crane pen itself. Preliminary drawings (U.S. Fish and Wildlife Service, Dwg. No. 5R-MD-217-181.0), which were the basis for survey staking of the site area prior to the testing, and on-site discussions with PWRC personnel involved with the project, identified four specific elements which could affect resources: perimeter and interior fencing throughout an area of 250 by 520 feet (the crane pen proper): an access road extending southwest from the west corner of the pen; a water supply line extending north from the west corner; and a drainage line extending northeast from the east corner. Shovel tests were excavated at a 50 foot interval throughout the areas where these project elements would entail ground disturbances (Figure 20). Additional shovel tests, generally at an interval of 25 feet (i.e., between the 50 foot interval tests), were dug in most locations where lithic debris was found. Where the concentration of lithic debris was discovered, along the route of the drainage line, eleven 5 by 5 foot test units were excavated.

The shovel tests were about 1 foot in diameter and 0.75 to 1.5 foot deep, depending on the depth of the subsoil (of which about 0.25 foot was usually dug). The 5 foot square test units were dug to depths of 1.0 to 1.1 feet, except unit no. 3 where the subsoil was excavated to a total depth, below grade, of 1.25 feet. Other than at the break between the topsoil (plow zone) and subsoil, where trowels were used, shovels were employed in excavating the test units. All excavated soils were sifted through one-quarter inch mesh hardware cloth to recover artifacts, which were bagged according to provenience, and taken to the Applied Archeology Center for processing. Brief notes concerning field procedures, soils, and artifacts were kept throughout the testing, and were supplemented with photographs and drawings. To facilitate preparation of a plan of the tests, a transit survey was made following their completion.

Findings

Of the 122 shovel tests excavated, 37 were found to contain evidence of human activity: lithic debris, reflecting prehistoric activities, was found exclusively in 7 shovel tests; both lithic debris and historical material were found in 11 tests; historical material only was found in 16 tests; and only small bits of charcoal were found in 3 tests (Table 16). Nearly

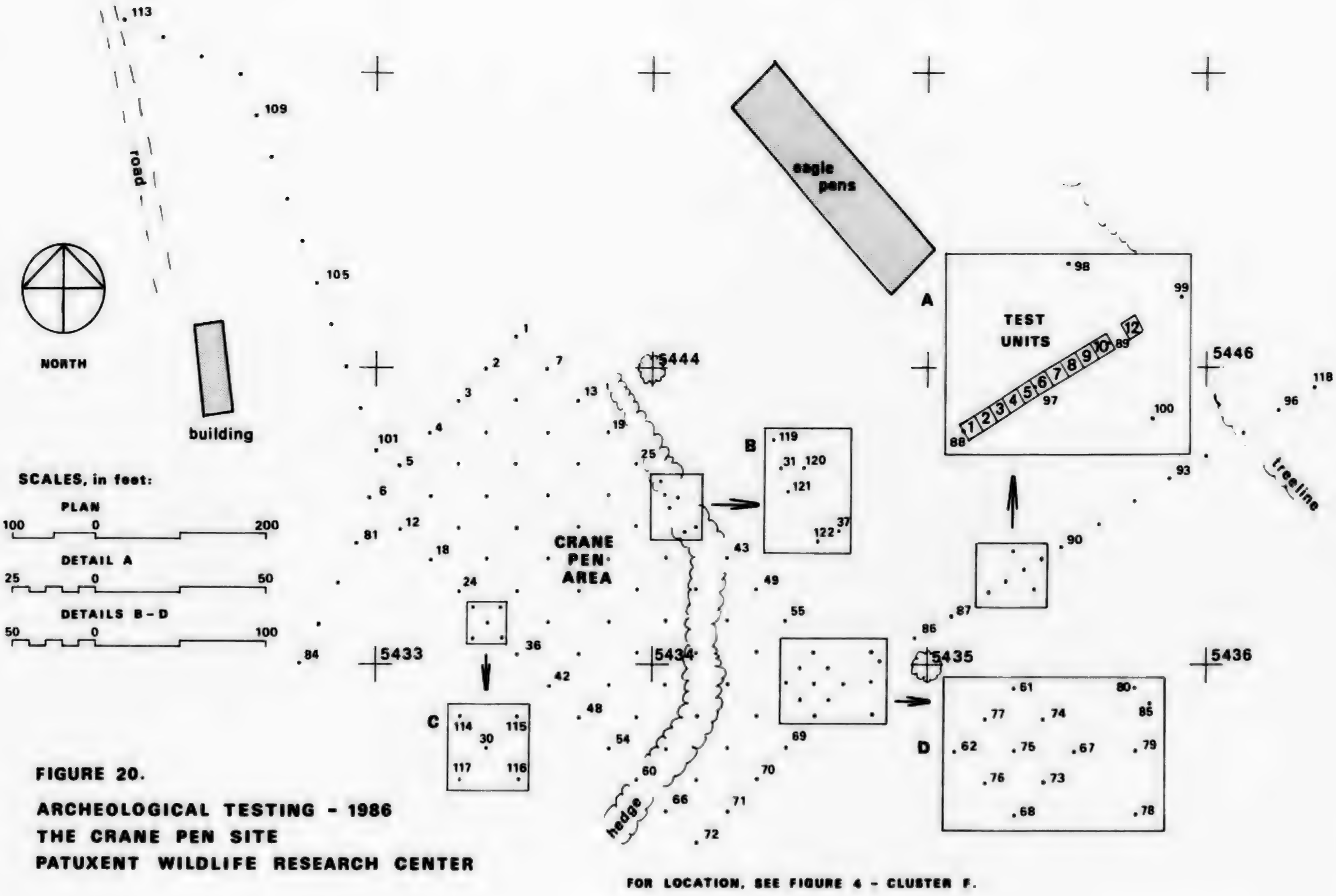

FIGURE 20.

ARCHEOLOGICAL TESTING - 1986
THE CRANE PEN SITE
PATUXENT WILDLIFE RESEARCH CENTER

FOR LOCATION, SEE FIGURE 4 - CLUSTER F.

TABLE 16
ARTIFACTS RECOVERED IN SHOVEL TESTS

Crane Pen Vicinity -- 1986

	Prehistoric					Historic									
Shovel Test	Fire-Cracked	Shatter	Flakes	Other	Total	Ceramic	Pipe Frags.	Brick Frags.	Nail Frags.	Bottle Frags.	Coal/ Cinder	Charcoal	Lime/ Limestone	Other	Total
9	-	-	-	-	-	1	-	1	-	-	25	-	-	2	29
10	-	-	-	-	-	-	-	-	3	-	-	-	-	-	3
11	-	-	-	-	-	-	-	-	-	-	5	46	-	-	51
26	-	-	-	-	-	-	-	27	2	-	-	-	-	-	29
27	-	-	-	-	-	-	-	-	-	-	12	-	-	-	12
28	-	-	-	-	-	-	-	-	-	-	2	2	-	-	4
30	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
31	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-
32	-	-	-	-	-	-	-	1	-	-	3	-	-	-	4
34	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-
37	-	-	1	-	1	-	-	1	-	-	-	-	-	-	1
53	-	-	-	-	-	-	-	-	-	2	-	-	-	-	2
55	-	-	1	-	1	-	1	-	-	-	-	-	-	-	1
61	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-
62	-	1	-	-	1	-	-	-	1	6	-	-	-	-	7
67	-	-	-	-	-	-	1	-	-	-	9	-	27	1	38
71	-	-	-	-	-	-	-	-	-	-	-	1	-	1	2
73	1	2	-	-	3	-	-	-	-	-	-	-	-	-	-
74	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1
75	1	-	1	-	2	-	-	-	1	-	2	4	-	-	6
77	1	-	-	-	1	-	-	-	-	-	1	-	-	1	2
80	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
85	-	-	-	-	-	-	-	-	-	-	-	-	3	-	3
87	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
88	-	-	-	1	1	-	-	1	-	-	-	-	-	-	1
89	-	-	3	-	3	-	-	-	-	-	-	-	-	-	-
90	-	-	1	-	1	-	-	-	-	-	1	-	-	-	1
91	-	-	2	-	2	-	-	-	-	-	-	-	-	-	-
92	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
97	1	-	5	-	6	-	-	-	-	-	1	-	-	-	1
98	-	2	4	-	6	-	-	-	1	-	2	-	-	-	3
99	1	-	2	-	3	-	-	-	-	-	1	-	2	-	3
100	1	1	1	-	3	-	-	-	-	-	-	-	-	-	-
104	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
110	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
117	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
120	-	-	-	1	1	-	-	-	-	-	-	1	1	-	2
Total	6	7	23	2	38	1	3	31	8	8	66	58	33	7	215

all of the prehistoric material recovered in the shovel tests consisted of quartz and quartzite flakes; one possible prehistoric tool fragment, of bifacially flaked quartzite, was also found. Most of the historical material consisted of brick fragments, coal, cinders, and pieces of lime and limestone. The most distinctive historical artifacts were a blue transfer-printed whiteware fragment, several small green bottle fragments, white clay pipe fragments, and fragments of wrought iron and machine-cut nails.

Prehistoric material was found to be concentrated in only one area, along the drainage line route (shovel test nos. 88-91 and 97-100). Two-thirds of all the lithic debris recovered in the shovel tests was found in that area. Scatters were present at the east corner and along the northeast edge of the crane pen area proper. Historical material was most common in the center and towards the northwest end and east corner of the crane pen area, but it was also present along the drainage line route.

The eleven test units excavated where the concentration of prehistoric material was found, being substantially larger than the shovel tests, yielded much larger amounts of artifacts, including a few diagnostic items (Table 17). The most significant were 3 Holmes points (2 quartzite, 1 quartz), which evidence from other sites suggest date to the middle to late part of the Late Archaic, c. 2500-1700 B.C. (Steponaitis 1986:141-142; Potter 1982:303), and a Rossville-like point which may date to the Early Woodland, c. 750 B.C.-A.D. 200 (Steponaitis 1986:147). Also recovered were bifaces, a drill fragment, hammerstones, and pottery (not typable), as well as large amounts of quartz and quartzite debris and of fire-cracked rock. Rhyolite flakes were present but uncommon, as were flakes of argillite and local "ironstone." A few historical artifacts were also recovered.

Site Interpretation

The density and variety of artifacts are indicative of encampments of some type. However, although plow scars, root stains, and rodent

TABLE 17

Artifacts Recovered in Test Units
Crane Pen Site -- 1986

Artifacts	Test Units 1	2	3	4	5	6	7	8	9	10	12	Total
Projectile Points												
Holmes	-	-	1	-	-	1	1	-	-	-	-	3
Rossville-like	-	-	-	-	-	1	-	-	-	-	-	1
Frag./Unident.	-	1	-	-	-	2	3	2	1	-	-	9
Bifaces												
Preform	-	-	1	-	-	1	-	-	-	-	-	2
Knife (?)	-	-	-	-	-	1	-	-	-	-	-	1
Frag.	-	-	1	-	-	-	-	-	-	-	-	1
Drill	-	-	-	1	-	-	-	1	-	-	-	2
Hammerstone	-	-	-	-	-	-	-	-	1	2 (?)	-	3
Pottery	1	-	-	-	-	-	-	-	-	-	-	1
Flakes/Shatter	74	65	104	91	72	89	98	84	48	47	29	801
Other	-	-	1@	-	1#	-	-	-	-	-	1*	3
Total Prehistoric	75	66	108	92	73	95	102	87	50	49	30	827
Fire-cracked Rock (grams)	589	589	390	1004	283	352	1532	913	448	948	326	7374
Carbonized Nut Shell (Hickory)	-	-	-	-	-	-	-	8	5	1	-	14
Historic:												
Ceramic	-	-	1	-	-	-	-	2	-	-	-	3
Pipe frags.	1	-	-	-	-	-	-	-	-	-	-	1
Brick frags.	-	-	1	-	1	-	-	1	3	-	2	8
Lime (?)	-	-	-	-	-	-	-	-	-	-	1	1
Brass Frag.	-	-	-	-	-	-	1	-	-	-	-	1
Total	1	-	2	-	1	-	1	3	3	-	3	14

@ = Pecked shale object (anvil ?)
# = Utilized quartzite flake
* = Very small, unidentified, ground stone object

burrows were evident, no features reflecting the presence of structures or hearths were found. As discussed in the above report, the encampments would have been associated with subsistence activities, and conditioned by a multitude of natural environmental factors. They were probably established periodically over a span of several thousand years. During at least some of this time span, the local occupations were likely to have been base camps.

The complete spatial extent of the artifact concentration along the drainage line route was not determined. It falls within plot 5435 of the PWRC grid system, which is one of the plots comprising Cluster F, defined above on the basis of previous, avocational surface collections of artifacts. The density of artifacts evidently diminishes to the northeast and southwest of the test unit area, but areas to the northwest and southeast could not be adequately sampled within the framework of this project. Substantial parts of plots 5433 and 5434 were tested without discovery of significant concentrations of artifacts, which suggests that these plots, especially 5433, are unlikely to have been the actual provenience of the surface-collected artifacts (n = 42) assigned a plot provenience of 5433/5434/5435 when catalogued 25 years ago. The descriptive provenience for these artifacts ("S.E. side of A Farm"), while less exact, is probably more accurate, associating this portion of the PWRC's collection with either Cluster F or Cluster E.

Conclusions

The prehistoric artifact concentration found along the route of the crane pen drainage line constitutes some portion of a significant site, one potentially eligible for listing on the National Register of Historic Places. Although no features were discovered in the course of the testing done in 1986, and only a small number of diagnostic artifacts retrieved, the site could in the future yield information important to our understanding of local prehistoric cultures. Because of the mitigation oriented objectives of the testing, the full spatial extent of the site was not determined. The site may extend further to northwest or southeast, or it may be comprised of several discrete concentrations.

The site has, in any case, been named the Crane Pen site, and assigned the Maryland state number 18PR312, on the basis of a form report prepared by Dana Linck and sent to the Maryland Geological Survey, Division of Archeology, on July 31, 1986. By memorandum dated July 25, 1986, Douglas C. Comer, Chief of the Applied Archeology Center, advised the Fish and Wildlife Service that the testing had been performed in a manner which provided sufficient mitigation of the adverse effects of construction, so long as the drainage line was installed along the alignment tested.

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FRONT AND BACK COVER PHOTOGRAPHY

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